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RUTGERS SCIENTIFIC SCHOOL

THE STATE COLLEGE

FOR THE BENEFIT OF

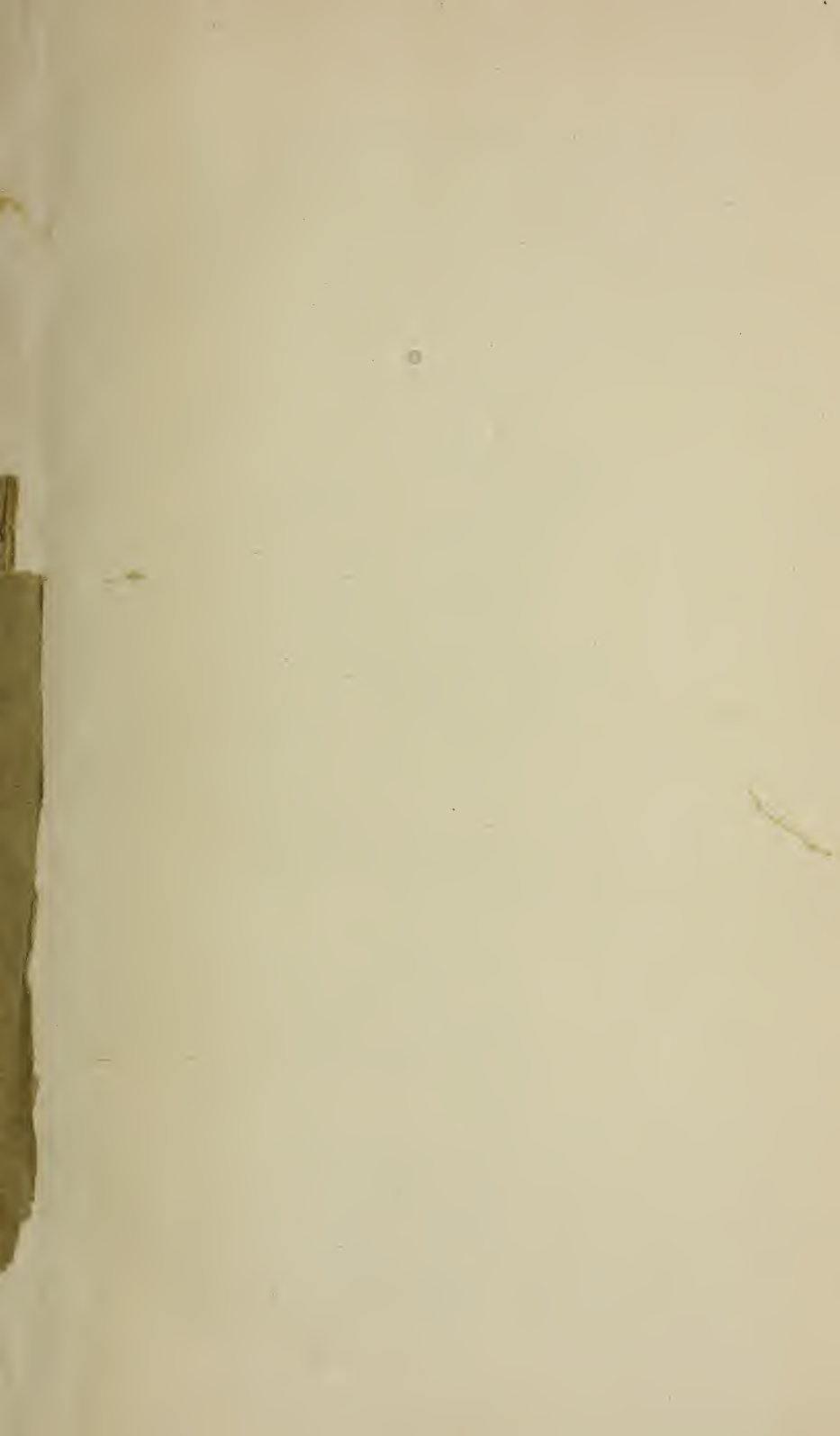
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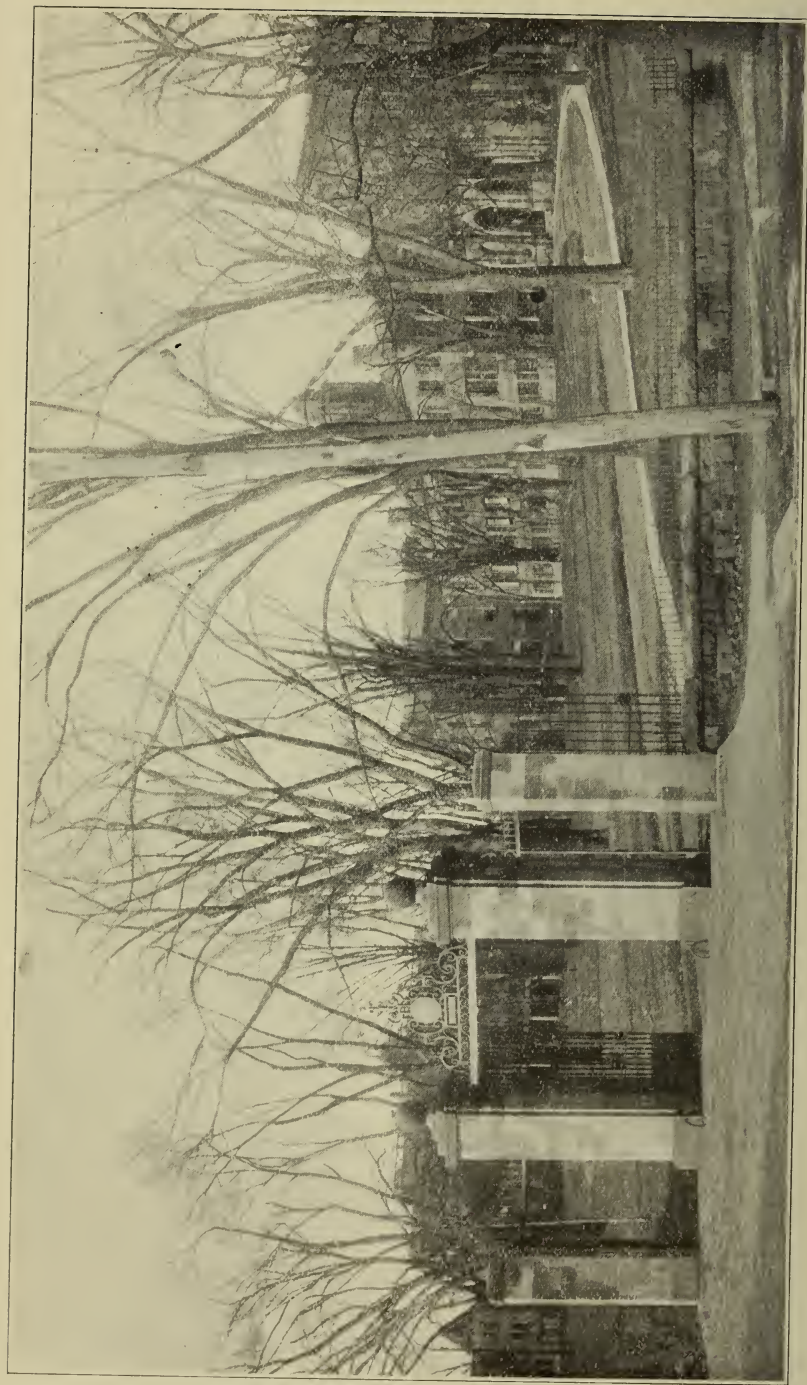
AGRICULTURE AND THE MECHANIC ARTS

Forty-Third Annual Report, Oct 31, 1907

NEW BRUNSWICK, N. J.

1907





Campus

Front View

Rutgers

RUTGERS SCIENTIFIC SCHOOL

THE STATE COLLEGE

FOR THE BENEFIT OF

AGRICULTURE AND THE MECHANIC ARTS

Forty-Third Annual Report, Oct. 31, 1907



NEW BRUNSWICK, N. J.

1907

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COLLEGE CALENDAR

1907

<i>September 16-18</i>	Examinations, beginning Monday, 10 a. m.	<i>Monday to Wednesday</i>
<i>September 18</i>	First term begins, 8.40 a. m.; recitations, 11 a. m.	<i>Wednesday</i>
<i>October 4, 5</i>	Sloan entrance-prize examinations.	<i>Friday and Saturday</i>
<i>October 11</i>	Stated meeting of the Board of Trustees, 2 p. m.	<i>Friday</i>
<i>November 5</i>	Election Day.	<i>Tuesday</i>
<i>November 10</i>	Charter Day.	<i>Sunday</i>
<i>November 27</i>	Thanksgiving recess begins, 11 a. m.	<i>Wednesday</i>
<i>December 2</i>	Thanksgiving recess ends, 8.40 a. m.	<i>Monday</i>
<i>December 20</i>	Christmas vacation begins.	<i>Friday</i>

CHRISTMAS VACATION

1908

<i>January 7</i>	Christmas vacation ends, 8.40 a. m.; recitations, 9 a. m.	<i>Tuesday</i>
<i>January 10</i>	Stated meeting of the Board of Trustees, 2 p. m.	<i>Friday</i>
<i>January 30</i>	Day of Prayer for Colleges.	<i>Thursday</i>
<i>February 3-8</i>	Examinations.	<i>Monday to Saturday</i>
<i>February 10</i>	Second term begins, 8.40 a. m.; recitations, 9 a. m.	<i>Monday</i>
<i>February 22</i>	Washington's Birthday.	<i>Saturday</i>
<i>April 10</i>	Stated meeting of the Board of Trustees, 2 p. m.	<i>Friday</i>
<i>April 15</i>	Spring vacation begins.	<i>Wednesday</i>

SPRING VACATION

<i>April 22</i>	Spring vacation ends, 8.40 a. m.; recitations, 9 a. m.	<i>Wednesday</i>
<i>May 15</i>	Exhibition Drill, 4 p. m.	<i>Friday</i>
<i>May 18-21</i>	Senior final examinations.	<i>Monday to Thursday</i>
<i>June 6</i>	Competitive examinations in each county court-house of New Jersey for free scholarships in the Rutgers Scientific School.	<i>Saturday</i>
<i>June 8-12</i>	Examinations of three lower classes.	<i>Monday to Friday</i>
<i>June 12, 13</i>	Entrance examinations, beginning Friday, 10 a. m.	<i>Friday and Saturday</i>
<i>June 14</i>	Baccalaureate Sermon, 7.30 p. m.	<i>Sunday</i>
<i>June 16</i>	Junior Exhibition, 8 p. m.	<i>Tuesday</i>

COLLEGE CALENDAR

1908

June 17 Stated meeting of the Board of Trustees, 10.30 a. m. *Wednesday*
 Annual meeting of the Alumni, 10.30 a. m.
 Address before the Alumni, 12.30 p. m.
 Alumni Dinner, 1.30 p. m.
 142nd Annual Commencement, 8 p. m.

SUMMER VACATION

September 21-23 *Monday to Wednesday*
 Examinations, beginning Monday, 10 a. m.
September 23 *Wednesday*
 First term begins, 8.40 a. m.; recitations, 11 a. m.
October 2, 3 Sloan entrance-prize examinations. *Friday and Saturday*
October 9 Stated meeting of the Board of Trustees, 2 p. m. *Friday*
November 3 Election Day. *Tuesday*
November 10 Charter Day. *Tuesday*
November 25 Thanksgiving recess begins, 11 a. m. *Wednesday*
November 30 Thanksgiving recess ends, 8.40 a. m. *Monday*
December 22 Christmas vacation begins. *Tuesday*

CHRISTMAS VACATION

1909

January 6 *Wednesday*
 Christmas vacation ends, 8.40 a. m.; recitations, 9 a. m.

BOARD OF VISITORS

(Appointed by the Governor)

FIRST CONGRESSIONAL DISTRICT

	<i>Residences</i>	<i>Term Expires</i>
EPHRAIM T. GILL	Haddonfield	1907
DANIEL W. HORNER	Merchantville	1907

SECOND CONGRESSIONAL DISTRICT

JOHN E. DARNELL (VACANCY)	Masonville	1907
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THIRD CONGRESSIONAL DISTRICT

DAVID D. DENISE	Freehold	1907
JAMES NEILSON	New Brunswick	1907

FOURTH CONGRESSIONAL DISTRICT

SAMUEL B. KETCHAM	Pennington	1907
CHARLES H. COOK	Trenton	1907

FIFTH CONGRESSIONAL DISTRICT

OGDEN WOODRUFF (VACANCY)	Elizabeth	1907
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SIXTH CONGRESSIONAL DISTRICT

ABRAM C. HOLDRUM	Westwood	1907
HENRY MARELLI	Paterson	1907

SEVENTH CONGRESSIONAL DISTRICT

GEORGE E. DE CAMP	Roseland	1907
CYRUS B. CRANE	Caldwell	1907

EIGHTH CONGRESSIONAL DISTRICT

JOSEPH B. WARD, M.D. (VACANCY)	Lyons Farms	1907
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NINTH CONGRESSIONAL DISTRICT

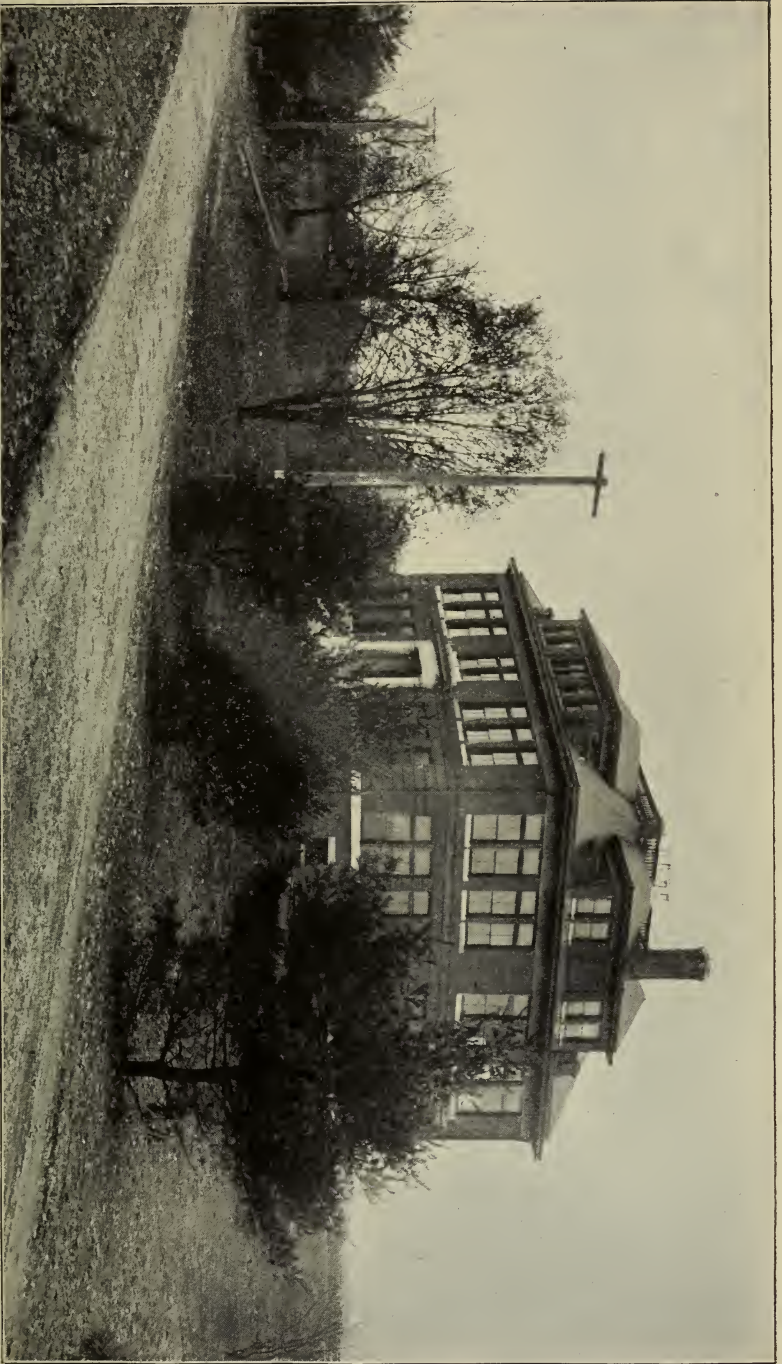
JOHN HUDSON (VACANCY)	Jersey City	1907
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TENTH CONGRESSIONAL DISTRICT

HENRY BELL	Union Hill	1907
HENRY A. GAEDE	Hoboken	1907

OFFICERS

DAVID D. DENISE, *President*
SAMUEL B. KETCHAM, *Vice-President*
IRVING S. UPSON, *Secretary and Treasurer*



Agricultural Building—College Farm

REPORT OF THE STATE BOARD OF VISITORS

To His Excellency Edward C. Stokes, Governor of the State of New Jersey:

HONORED SIR—The Board of Visitors to the State Agricultural College herewith present their forty-third annual report upon the present condition and courses of instruction at that institution, as required by the act creating the Board, entitled “An act appropriating scrip for the public lands granted to the State of New Jersey by the act of Congress, approved July second, one thousand eight hundred and sixty-two,” and approved 4th April, 1864.

The members of the Board made their semi-annual examinations of the students pursuing the regular courses of instruction, for the present fiscal year, on the 13th December, 1906, and 6th June, 1907. They also visited the laboratories, the draughting-room, the military drill-hall, the collections of the institutions, and the farm provided for the State Agricultural College by the Trustees of Rutgers College.

During the year the membership of the Faculty has been 33, and all but five of this number have given instruction in the Scientific School.

The enrollment of students for the year was 216; graduate students, 4; Seniors, 29; Juniors, 33; Sophomores, 54; Freshmen, 58; special students, not candidates for a degree, 38.

There were also 57 students in the Classical School and 140 pupils in attendance at the Preparatory School. The degree of Bachelor of Science was conferred upon 27 graduates in June, 1907. Of these graduates, 16 had pursued the Course in Civil Engineering and Mechanics, 4 the Course in Chemistry, 6 the Course in Electricity, and 1 the Course in Clay-working and Ceramics.

The final examinations of the students in the subjects pursued during the year which closed in June, 1907, were well sustained.

At the close of each of the examinations of the students and the

REPORT OF RUTGERS SCIENTIFIC SCHOOL

inspection of the buildings and facilities for instruction, the members of the Board met in formal session and reported severally upon the observations and impressions of their semi-annual visits. It was voted unanimously that the Trustees and Faculty of Rutgers College are faithfully and liberally carrying out the provisions of their contract with the State.

CONDITION AND PROGRESS

The curriculum has been revised on the following principles:

1 The requirements for admission to the courses leading to the degrees of Bachelor of Arts, Bachelor of Letters, and Bachelor of Science, while differing in subject matter, are to be fairly equivalent in amount.

2 In the courses leading to the degrees of Bachelor of Arts and Bachelor of Letters the proportion of elective work is increased and the elective principle is made operative in the course.

3 In the technical science courses an opportunity is afforded for greater specialization than heretofore.

4 A general course in science is laid out, in which such work as is not prescribed to all students pursuing this course is made elective, as in the Bachelor of Arts and Bachelor of Letters Courses.

5 A new technical course in Mechanical Engineering is established.

New buildings are announced as follows:

1 A building has been erected to accommodate the Short Courses in Agriculture, costing, with equipment, \$24,000.

2 Plans are being prepared for a new science building to accommodate the departments of civil, mechanical, and electrical engineering.

3 Ten thousand dollars have been given for the purchase of a new site for the Preparatory School.

The following is a list of the members of the graduating class of 1907, together with the subject of each graduate's thesis:

Charles Chambers Armstrong, South River, N. J.

The Construction and Operation of the Coal Storage Plant belonging to the Susquehanna Coal Co., situated near Runyon, New Jersey.

John Louis Baker, Trenton, N. J.

Development of Cadwalader Heights, Trenton, N. J.

REPORT OF THE STATE BOARD OF VISITORS

- Ralph Lester Beach, East Orange, N. J.
Experimental Investigation of some Alternating Current Phenomena.
- Abraham Blum, New Brunswick, N. J.
Rating of a Shunt Motor for Measurement of Power.
- Walter Rodney Cornell, Vineland, N. J.
The Construction and Operation of the Sewage Disposal System at Vineland, New Jersey.
- Randolph Marshall Creamer, Petersburg, N. J.
A Sanitary Sewer System for Ocean City, N. J.
- Jésus María González, San Juan, P. R., W. I.
Highway and Railroad Construction in Porto Rico.
- Thomas Dean Halliwell, Jr., Jersey City, N. J.
Experimental Investigation of some Alternating Current Phenomena.
- Lewis Arthur Heath, New Brunswick, N. J.
Alternating Current *versus* Direct Current System of Electric Traction.
- William Richard Hughes, Jr., New Brunswick, N. J.
Bitulithic Pavement, Somerset St., New Brunswick, N. J.
- Albert Rittenhouse Johnson, Raven Rock, N. J.
A Plan for the Grading and Draining of the new Neilson Campus.
- Harry Aaron Marmer, Woodbine, N. J.
Curves of Pursuit.
- Clifford Davidson Mayhew, Elmer, N. J.
The Sewage Disposal Plant of the City of Plainfield.
- Walter Ernest Nelson, New Market, N. J.
A Through Pratt Bridge over the Raritan River at the Landing.
- Alex William Quackenboss, New Brunswick, N. J.
Rating of a Shunt Motor for Measurement of Power.
- Walter Frank Reinheimer, Warsaw, N. Y.
A Howe Bridge across the Raritan River at Raritan Landing, N. J.
- Harvey Clifford Robins, Roselle, N. J.
Electro-chemistry as Applied to Analytical Chemistry.
- Walter Frederick Ludwig Roeder, New Brunswick, N. J.
The Cycloid.
- Harry John Stockum, Marlton, N. J.
Contour Map Showing Grading and Drainage of Neilson Campus.
- Isaac Victor Stone, Woodbine, N. J.
Chemistry prior to the "Theory of Dissociation" and the Origin of the Latter.
- Reuben Tharp, Jr., Rahway, N. J.
The Electric Furnace.
- Vinton Douglas Tompkins, Trenton, N. J.
The Ores Used and the Methods of Manufacture of Wrought Iron.
- Ralph Decker Van Duzer, Middletown, N. J.
Construction of a Proposed Road on Grounds of New York's Tuberculosis Sanitarium near Otisville, Orange County, New York.
- Frank Robertson Van Sant, Newark, N. J.
Notes on Recent Single Phase Railway Installations.
- Raymond Percy Wilson, East Millstone, N. J.
Old Bridge Storage-grounds of the Susquehanna Coal Co.
- Walter H. Wilson, Metuchen, N. J.
Fritted Glazes.
- William Sanderson Woodruff, Somerville, N. J.
A Through Warren Bridge over Middlebrook near Bound Brook, N. J.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

APPOINTEES TO STATE SCHOLARSHIPS UNDER ACT OF 1864

<i>Counties</i>	<i>Number of Scholarships</i>	<i>Appointees</i>	<i>Class</i>	<i>Residence</i>
Atlantic	1.....	Walter G. Winne.....	1910.....	Bergen
Bergen	1.....	Robert Nutt.....	1909.....	Bergen
Burlington	3.....	William H. Wallace.....	1909.....	Burlington
		Frank R. Parker.....	1911.....	Monmouth
		Willis E. Rochford.....	1911.....	Mercer
Camden	2.....	Arthur T. McMichael....	1910.....	Camden
		Charles R. Rogers.....	1911.....	Monmouth
Cape May	1			
Cumberland	1.....	John W. Janvier.....	1909.....	Cumberland
Essex	6.....	Howard S. Gies.....	1908.....	Essex
		Thornton M. Hopler....	1908.....	Essex
		Clifford H. Lawrence....	1909.....	Essex
		Halsey E. Ramsen.....	1909.....	Essex
		William V. Becker.....	1911.....	Essex
		Lester D. Baldwin.....	1911.....	Essex
Gloucester	1.....	Arthur C. Swift.....	1908.....	Monmouth
Hudson	6.....	Clarence L. Pfersch.....	1908.....	Hudson
		Herbert B. Fenn.....	1908.....	Hudson
		Fred F. Read.....	1909.....	Hudson
		Earl W. Presley.....	1911.....	Hudson
		Louis R. Freund.....	1911.....	Essex
Hunterdon	1			
Mercer	2.....	William W. Faussett....	1910.....	Mercer
		Scott M. Fell.....	1910.....	Mercer
Middlesex	2.....	Theodore F. Appleby....	1909.....	Middlesex
		Fitzgerald Tisdall.....	1909.....	Middlesex
Monmouth	2.....	Tunis Denise.....	1910.....	Monmouth
		William B. Duryee, Jr..	1910.....	Monmouth
Morris	2.....	Nathaniel C. Wyckoff....	1910.....	Somerset
Ocean	1.....	John W. Moffett.....	1908.....	Middlesex
Passaic	2.....	George W. Stout.....	1911.....	Middlesex
Salem	1.....	John B. Smith.....	1911.....	Salem
Somerset	1.....	Walter H. Rugen.....	1909.....	Somerset
Sussex	1			
Union	2.....	Charles Elliot.....	1908.....	Union
		William R. Ranson.....	1909.....	Union
Warren	1.....	Will G. Atwood.....	1909.....	Warren

APPOINTEES TO ADDITIONAL SCHOLARSHIPS BY TRUSTEES

At Large	10.....	Morris J. Glück.....	1908.....	Middlesex
		Samuel S. Demarest....	1909.....	Bergen
		Clayton S. Smith.....	1909.....	Essex
		William H. Haelig.....	1910.....	Somerset
		Harold W. Dixon.....	1911.....	Middlesex
		Willard C. Durham.....	1911.....	Middlesex
		John R. Sexton.....	1911.....	Monmouth
		Harold Silcox.....	1911.....	Essex

REPORT OF THE STATE BOARD OF VISITORS

APPOINTEES TO ASSEMBLY DISTRICT SCHOLARSHIPS UNDER ACT OF 1890

<i>Name</i>	<i>County</i>	<i>Class</i>
Will W. Berdan	Passaic	1908
Harry F. Brewer	Union	1908
Eugene S. Brokaw	Essex	1908
Charles B. Carman	Essex	1908
Warren L. Du Bois	Essex	1908
Harry S. Feller	Middlesex	1908
Harris A. Jemison	Monmouth	1908
Elmer W. Kent	Middlesex	1908
Harry Levenson	Essex	1908
Robert A. Lufburrow	Monmouth	1908
Alfred J. Mahnken	Hudson	1908
Clifford L. Mason	Mercer	1908
Richard C. Rice	Camden	1908
William P. Seddon	Passaic	1908
Harold R. Segoine	Monmouth	1908
James H. Smith	Essex	1908
Martin S. Steelman	Cape May	1908
Frank S. Stimson	Union	1908
Charles M. Warner	Union	1908
Robert G. Allen	Monmouth	1909
Raymond L. Baldwin	Essex	1909
Myron H. Beekman	Monmouth	1909
Allen D. Cloke	Union	1909
Carl H. Greenewald	Burlington	1909
Morgan Hand, Jr.	Essex	1909
David L. Hendler	Essex	1909
Hans M. Kaletsch	Middlesex	1909
Frank A. Morrison	Bergen	1909
Julius J. Newmark	Somerset	1909
Ralph F. Ritter	Union	1909
Rhea G. Smith	Middlesex	1909
Zacharya H. Srager	Union	1909
Rudolph F. Steinke	Union	1909
William L. Van Keuren	Hudson	1909
Rushworth B. Van Sickle	Essex	1909
Raymond B. Walling	Monmouth	1909
John M. Wenneis	Hudson	1909
Jesse H. Beekman	Hudson	1910
Louis P. Booz, Jr.	Middlesex	1910
Charles W. Butler	Bergen	1910
Hyman N. Coplan	Union	1910
Howard K. Dilts	Hunterdon	1910
William P. Garrison	Cumberland	1910
Harry D. Green	Salem	1910
Thomas L. Hanson	Middlesex	1910
Julius Jahn	Union	1910
Edwin T. Leslie	Essex	1910
Andrew T. Manley	Essex	1910
Luther H. Martin	Middlesex	1910
Ernest C. Moffett	Middlesex	1910

REPORT OF RUTGERS SCIENTIFIC SCHOOL

<i>Name</i>	<i>County</i>	<i>Class</i>
Sydney P. Noë	Essex	1910
Henry R. Powell	Cumberland	1910
Robert E. Rugen	Somerset	1910
Willard E. Schenck	Essex	1910
Edward R. Schneider	Essex	1910
Augustus B. Van Mater	Essex	1910
Charles J. M. Yates	Essex	1910
John V. Bissett	Hudson	1911
Alan E. Burns	Middlesex	1911
Thomas S. Cooper	Union	1911
Edward C. Dana	Middlesex	1911
Roscoe W. De Baun	Essex	1911
Wallace T. Eakins	Passaic	1911
George S. Fisher	Essex	1911
Clarence E. Fulton	Hudson	1911
Ferdinand W. Haasis	Essex	1911
Roy O. Henszey	Camden	1911
George E. Jones	Bergen	1911
Charles M. Keebler	Gloucester	1911
Henry Kreh, Jr.	Union	1911
John K. Leeds	Essex	1911
Harold D. Leslie	Essex	1911
William H. MacDonald	Hudson	1911
Louis F. Merrill	Hunterdon	1911
Warren W. Oley	Bergen	1911
Raymond S. Patterson	Middlesex	1911
Harold C. Pierson	Essex	1911
Frederick M. Smith	Union	1911
Hiram Steelman, Jr.	Cape May	1911
Earle C. Stillwell	Monmouth	1911
Lloyd M. Van Ness	Essex	1911
Arthur D. Welsh	Hudson	1911
Japhet B. Woolston	Mercer	1911

All of which is respectfully submitted,

D. D. DENISE

President of the Board of Visitors

REPORT OF THE BOARD OF TRUSTEES

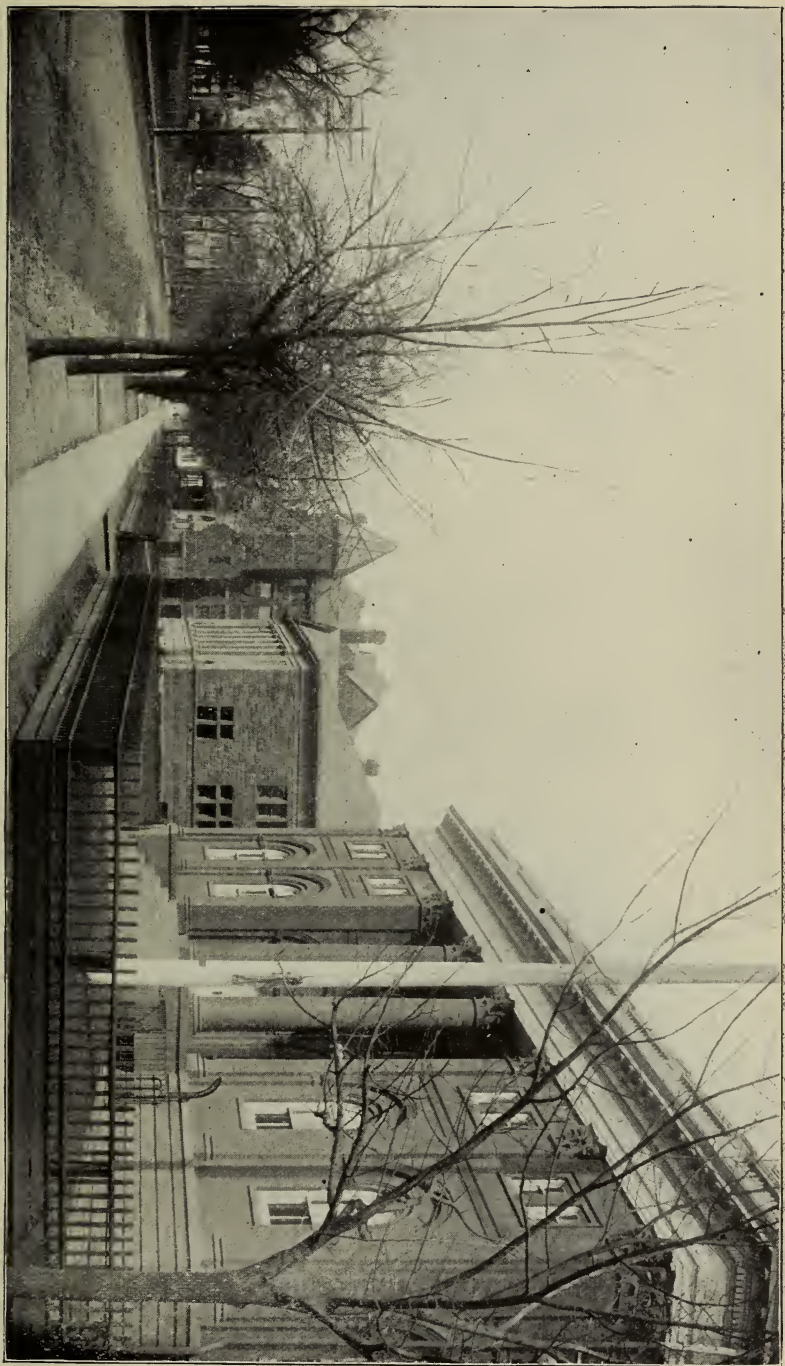
RUTGERS COLLEGE
NEW BRUNSWICK, November 30, 1907

*To His Excellency Edward C. Stokes, Governor of the State of
New Jersey:*

HONORED SIR—In compliance with the act of Congress, approved 2d July, 1862, and the act of the Legislature of New Jersey, approved 4th April, 1864, I beg leave to submit, on behalf of the Trustees of Rutgers College, the forty-third annual report of Rutgers Scientific School.

FACULTY

- WILLIAM H. S. DEMAREST, D.D.
PRESIDENT
Seminary Place
- FRANCIS CUYLER VAN DYCK, PH.D.
DEAN
Professor of Physics and Experimental Mechanics
84 College Avenue
- EDWARD ALBERT BOWSER, C.E., LL.D.
Emeritus Professor of Mathematics and Engineering
- CHARLES EDWARD HART, D.D.
Emeritus Professor of Ethics and Evidences of Christianity
33 Livingston Avenue
- AUSTIN SCOTT, PH.D., LL.D.
Voorhees Professor of History and Political Science
24 Livingston Avenue
- LOUIS BEVIER, JR., PH.D.
Professor of the Greek Language and Literature
Bishop Place
- ALFRED ALEXANDER TITSWORTH, C.E., D.SC.
Professor of Civil Engineering and Graphics
590 George Street
- JULIUS NELSON, PH.D.
Professor of Biology
Adelaide Avenue, Highland Park
- BYRON DAVID HALSTED, S.D.
Professor of Botany and Horticulture
121 Livingston Avenue
- JOHN BERNHARD SMITH, D.SC.
Professor of Entomology
157 College Avenue
- EDWARD BURNETT VOORHEES, D.SC.
Professor of Agriculture
Director of the Agricultural College Experiment Station
Superintendent of the College Farm
College Farm
- JOHN CHARLES VAN DYKE, L.H.D.
Professor of the History of Art
Seminary Campus



College Buildings on Neilson Campus

FACULTY

- ROBERT WOODWORTH PRENTISS, M.SC.
Professor of Mathematics and Astronomy
Director of the Schanck Observatory
 Benner St., Highland Park
- ELIOT ROBERTSON PAYSON, PH.D.
Professor of the History and Art of Teaching
 Hamilton Street
- EDWARD LUTHER STEVENSON, PH.D.
Professor of History
 39 Mine Street
- HENRY DU BOIS MULFORD, D.D.
Professor of the English Language and Literature, and
Rutgers College Lecturer on the English Bible
 The Bayard
- WILLIAM HAMILTON KIRK, PH.D.
Professor of the Latin Language and Literature
 65 Paterson Street
- JOSEPH VOLNEY LEWIS, S.B.
Professor of Geology and Mineralogy
Curator of the Geological Museum
 Hertzog Hall
- EDWIN BELL DAVIS, B.L.
Professor of Romance Languages
 145 College Avenue
- WILLIAM ISAAC CHAMBERLAIN, PH.D.
Collegiate Church Professor of Logic and Mental Philosophy
 40 Union Street
- RALPH BREWSTER PARROTT, B.SC.
 Captain 27th U. S. Infantry
Professor of Military Science and Tactics
 The Bayard
- WALTER RUSSELL NEWTON, PH.D.
Professor of the German Language and Literature
 39 College Avenue
- GEORGE HUBBARD PAYSON, D.D.
Professor Elect of Ethics and Evidences of Christianity
- RALPH GARRIGUE WRIGHT, PH.D.
Professor of Chemistry
 The Bayard
-
Professor of Mechanical Engineering
- IRVING STRONG UPSON, A.M.
 Registrar
 Secretary of the Faculty
 64 College Avenue
- CLARENCE LIVINGSTON SPEYERS, PH.B.
 Associate Professor of Chemistry
 192 College Avenue

REPORT OF RUTGERS SCIENTIFIC SCHOOL

- WILLIAM EUGENE BREAZEALE, M.SC.
Associate Professor of Mathematics
142 Hamilton Street
- RICHARD MORRIS, PH.D.
Associate Professor of Mathematics and Graphics
28 Morris Street
- CULLEN WARNER PARMELEE, B.SC.
Associate Professor of Applied Chemistry
Director of the Department of Clay-working and Ceramics
First Avenue, Highland Park
- ALBERT CHESTER DE REGT, M.SC.
Associate Professor of Chemistry
1 Hardenbergh Street
- FRANK FORRESTER THOMPSON, E.E.
Associate Professor of Physics
91 Bayard Street
- CHARLES HUNTINGTON WHITMAN, PH.D.
Associate Professor of English
172 College Avenue
- JACOB GOODALE LIPMAN, PH.D.
Associate Professor of Agriculture
Bleecker Place
- EDMOND WOOD BILLETDOUX, A.M.
Associate Professor of Romance Languages
144 Hamilton Street
- EDWARD LIVINGSTON BARBOUR, M.E.
Instructor in Rhetoric and Elocution
172 College Avenue
- FRED HERBERT DODGE, A.B.
Instructor in Physical Training
Director of the Gymnasium
116 Hamilton Street
- FRANK RANDALL PRATT, B.SC.
Instructor in Mathematics and Graphics
2 Winants Hall

SPECIAL LECTURERS AND INSTRUCTORS

FERDINAND S. SCHENCK, D.D., LL.D.

Professor of Practical Theology at the Theological Seminary
Ethics and the Evidences of Christianity

Seminary Place

JOHN H. RAVEN, D.D.

Professor of Old Testament Languages and Exegesis at the Theological Seminary
Hebrew

Seminary Place

HOWARD CROSBY BUTLER, A.M.

Professor of Art and Archaeology at Princeton University
History of Architecture

Princeton

HENRY BARNARD KÜMMEL, PH.D.

State Geologist
Geology of New Jersey

Trenton

OTHER OFFICERS

GEORGE AUGUSTUS OSBORN, B.SC.

Librarian

189 College Avenue

JOHN IRVING NELSON, B.SC.

Assistant in Biology

New Market

FRANK HENRY GORTON

Assistant in Physical Training

197 Somerset Street

WILLIAM SEYMOUR VALIANT

Assistant in the Geological Museum

132 New Street

MODES OF ADMISSION

Each requirement for admission to the Freshman Class may be met either by examination or by certificate.

EXAMINATIONS

The candidate for admission may meet the requirements in each subject by either of two examinations, namely—

- 1 Entrance examination at the College
- 2 State competitive examination

1 *Entrance Examinations*

Examinations for admission are held at the College in June and September of each year. In 1908 these examinations will be held on the Friday and Saturday preceding commencement week, 12th and 13th June, beginning at 10 o'clock a. m. on Friday in the Registrar's office; and on the Monday and Tuesday preceding the opening of the College, 21st and 22d September, at the same hour and place. Students are advised to be present for examination in June.

2 *State Competitive Examinations*

If residents of the State of New Jersey, students will be admitted who pass the State competitive examination, which is held, for each county of the State, on the first Saturday in June of each year at the County Court House, under the direction of the City Superintendents and the County Superintendent of Schools in each county. In 1908 this will be held on 6th June. For the requirements of the State law, see pages 21 and 22.

Students who present themselves for examination should be prepared by careful study and by reviews of their work, to pass successfully a thorough examination on the subjects which are required, in which event they will be admitted without conditions.

MODES OF ADMISSION

Preliminary Examinations

It is not necessary that examinations in all the subjects required for admission be taken in the same year, but candidates may, on the dates specified above, offer themselves at any point in their preparatory studies for preliminary examination in any of the subjects required for admission in which their teachers certify they are prepared.

CERTIFICATES

The candidate may meet each requirement by certificate from any one of three sources, namely from—

- 1 An approved school
- 2 The College Entrance Examination Board
- 3 The Regents of the University of the State of New York

1 School Certificates

From certain preparatory schools of approved standing, students are admitted to the Freshman Class upon the certificate of the principal.

Admission on certificate is conditioned upon the student's proving himself able to do the full work of his class, and at any time during the freshman year he may be dropped from the class in case his work is not satisfactory.

Upon the request of the principal, or Board of Education, the Faculty will appoint a committee to visit any school and report upon its condition.

The schools which shall be approved by the Faculty upon the report of this committee shall be entitled, for a period of three years, to the privilege of admission upon certificate.

Blank forms of certificate for admission will be furnished to the principal of an approved school upon application to the Registrar.

2 College Entrance Examination Board

The certificates issued as the result of the examinations which are held by the College Entrance Examination Board will be accepted in so far as they meet the requirements for admission to Rutgers College. In 1908 these examinations will be held 15th to 20th June.

3 Regent's Pass-cards

The pass-cards given by the Regents of the University of the State of New York (and the certificates of certain other institutions approved by the Faculty), are accepted in place of entrance examinations in the subjects which they cover.

School certificates, when properly filled out, or pass-cards, should be forwarded to the Registrar before 15th June, 1908.

ADMISSION WITH CONDITIONS

Candidates who have not satisfied all the requirements for admission to the Freshman Class may be admitted with conditions by special vote of the Faculty.

Opportunities for the removal of entrance conditions will be offered during the first year on the Saturday before Thanksgiving, and thereafter on any of the days fixed for reëxaminations; see Deficiencies and Reëxaminations, page 137. A student so conditioned is required to avail himself of the first opportunity unless excused by the instructor in charge of the particular examination.

ADMISSION TO ADVANCED STUDY

Students may enter advanced classes either at the beginning of the college year or at other times, if they sustain a satisfactory examination both on the preliminary studies and on those already passed over by the class which they propose to enter. Full equivalents will be accepted.

ADMISSION TO SPECIAL STUDY

In exceptional cases students properly prepared for admission to the Freshman Class, may, by special vote of the Faculty, be permitted to pursue select branches of study. Such students are required to take examinations and all work in composition and in elocution, with the class with which they are studying.

SCHOLARSHIPS

GENERAL SCHOLARSHIPS

Free scholarships may be given to young men of approved character and ability, whose financial circumstances are such as to make assistance necessary. No deserving student who has shown perseverance and capacity is allowed to give up his course for lack of this assistance.

STATE SCHOLARSHIPS

Letters of inquiry to the President or to the Registrar will receive careful attention.

ACT OF 1864

Under this law, a certain number of students from the State of New Jersey are received into the Scientific School, and educated free of expense for tuition. These students are admitted to free scholarships on the recommendation of the superintendent of schools in each county, after passing the required examinations. The scholarships provided by the Act of 1864 are distributed among the counties in proportion to their population, as follows:

Atlantic	1	Gloucester	1	Ocean	1
Bergen	1	Hudson	6	Passaic	2
Burlington	3	Hunterdon	1	Salem	1
Camden	2	Mercer	2	Somerset	1
Cape May	1	Middlesex	2	Sussex	1
Cumberland	1	Monmouth	2	Union	2
Essex	6	Morris	2	Warren	1

These scholarships cover the charge of \$75.00 a year for tuition.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

SCHOLARSHIPS-AT-LARGE

In June, 1888, the Trustees of Rutgers College provided ten additional free State scholarships, these, like the preceding, covering the charge of \$75.00 a year for tuition.

ACT OF 1890

By a law passed 31st March, 1890, and amended by an act of 31st March, 1905, a number of free scholarships, one for each Assembly district for each year, are established and offered to students in all parts of the State. The candidates for these scholarships are selected as follows:

A competitive examination, under the direction of the city superintendents and the county superintendent of education in each county, shall be held at the county court house in each county of the State, upon the first Saturday in June of each year. If several candidates for appointment pass the examination from the same Assembly district, all who are suitably qualified shall receive appointment to such free scholarships, excess from certain Assembly districts being counterbalanced by vacancies in other Assembly districts, provided only that the entire number of appointees shall not exceed the entire number of free scholarships created by the State.

These scholarships cover all the college fees, including the charges for tuition and public-room service, and special fees, altogether \$110 to \$142 according to circumstances.

COUNTY SUPERINTENDENTS

The following are the names and addresses of the county superintendents:

Atlantic—Hon. Samuel D. Hoffman, Atlantic City
Bergen—B. C. Wooster, Hackensack
Burlington—Herman A. Stees, Beverly
Camden—Charles S. Albertson, Magnolia
Cape May—Oscar O. Barr, Cape May City



Winants Hall Dormitory

SCHOLARSHIPS

Cumberland—John N. Glaspell, Bridgeton
Essex—A. B. Meredith, Nutley
Gloucester—Daniel T. Steelman, Glassboro
Hudson—M. H. Kinsley, Hoboken
Hunterdon—Jason S. Hoffman, Flemington
Mercer—Joseph M. Arnold, Princeton
Middlesex—H. Brewster Willis, New Brunswick
Monmouth—John Enright, Freehold
Morris—Watson B. Matthews, Dover
Ocean—Charles A. Morris, Toms River
Passaic—Edward W. Garrison, Paterson
Salem—J. A. Wentzell, Elmer
Somerset—H. C. Krebs, Plainfield
Sussex—Ralph Decker, Sussex
Union—J. J. Savitz, Westfield
Warren—Franklin T. Atwood, Hackettstown

REQUIREMENTS FOR ADMISSION

Every applicant for admission should be at least sixteen years of age, and must submit to the President proper testimonials of a good moral character. If he be an applicant for a free State scholarship, he must also present to the President a certificate of appointment.

For information concerning scholarships, see pages 21ff.

FOUR-YEAR COURSES

The requirements for admission to the Freshman Class of the four-year courses consists (for the present) of twelve and one-half points.

A point may be defined as a subject of the secondary school curriculum pursued through an academic year for four or five periods a week. Further information may be found in the detailed statements for the several subjects, which are arranged alphabetically on the subsequent pages.

	<i>Points</i>
English	3
Mathematics	3½
German or French	2
Science	1
History	1
	<hr/>
	10½

In addition to the above requirements, two of the following points, at the discretion of the candidate, must be offered for admission, thus making a total of 12½ points. In 1912 and thereafter, instead of the one point in science specified below, the candidate will be allowed to offer two points in science.

	<i>Points</i>
German or French	2
Science	1
History	2

REQUIREMENTS FOR ADMISSION

In 1910 plane trigonometry will be added as a requirement, raising the total to 13 points: and in 1912 and thereafter, 14 points will be required, the additional point to be offered in either German, French, science or history, as the candidate may prefer. Two or three years of Latin will be allowed for the present as an equivalent for a corresponding amount of German or French.

For information concerning admission to the Short Course in Clay-working and Ceramics and to the Short Courses in Agriculture, see page 32.

ENGLISH

REQUIRED

The standard College Entrance requirement is in force for admission, and is equated as three points.

In June and September, 1908, the examination will be based upon the following:

Reading and Practice

Coleridge's *The Rime of the Ancient Mariner*
George Eliot's *Silas Marner*
Irving's *Life of Goldsmith*
Lowell's *The Vision of Sir Launfal*
Scott's *Ivanhoe*
Scott's *The Lady of the Lake*
Shakspeare's *Macbeth*
Shakspeare's *The Merchant of Venice*
Addison's *Sir Roger De Coverley Papers* in *The Spectator*
Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*

Study and Practice

Burke's *Speech on Conciliation with America*
Macaulay's *Essay on Addison*
Macaulay's *Life of Johnson*
Milton's *L'Allegro*, *Il Penseroso*, *Comus*, and *Lycidas*
Shakspeare's *Julius Cæsar*

Essay

A short essay is also required, to be written at the examination, on some theme connected with one or more of the books in the first list. No student will be accepted in English whose paper is notably deficient in spelling, punctuation, division into paragraphs, and expression, and whose answers show that he has not been instructed in grammatical definitions and rules, and in parsing.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

REQUIRED

In June and September, 1909, 1910 and 1911, the examination will be based upon the following:

Reading and Practice

A certain number of books will be recommended for reading, ten of which, selected as prescribed below, are to be offered for examination. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power for clear and accurate expression, and will call for only a general knowledge of the substance of the books. In every case knowledge of the book will be regarded as less important than the ability to write good English. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified to by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation for this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

Group I. (*two to be selected*):

Shakspeare's *As You Like It*, *Henry V.*, *Julius Cæsar*, *The Merchant of Venice*, *Twelfth Night*.

Group II. (*one to be selected*):

Bacon's *Essays*; Bunyan's *The Pilgrim's Progress*, Part I.; *The Sir Roger de Coverley Papers* in *The Spectator*; Franklin's *Autobiography*.

Group III. (*one to be selected*):

Chaucer's *Prologue*; Spenser's *Faerie Queene* (Selections); Pope's *The Rape of the Lock*; Goldsmith's *The Deserted Village*; Palgrave's *Golden Treasury* (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV. (*two to be selected*):

Goldsmith's *The Vicar of Wakefield*; Scott's *Ivanhoe*; Scott's *Quentin Durward*; Hawthorne's *The House of the Seven Gables*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; Dickens' *A Tale of Two Cities*; George Eliot's *Silas Marner*; Blackmore's *Lorna Doone*.

Group V. (*two to be selected*):

Irving's *Sketch Book*; Lamb's *Essays of Elia*; DeQuincey's *Joan of Arc* and *The English Mail Coach*; Carlyle's *Heroes and Hero Worship*; Emerson's *Essays* (Selected); Ruskin's *Sesame and Lilies*.

Group VI. (*two to be selected*):

Coleridge's *The Ancient Mariner*; Scott's *The Lady of the Lake*; Byron's *Mazeppa* and *The Prisoner of Chillon*; Palgrave's *Golden Treasury* (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley; Macaulay's *Lays of Ancient Rome*; Poe's *Poems*; Lowell's *The Vision of Sir Launfal*; Arnold's *Sohrab and Rustum*; Longfellow's *The Courtship of Miles Standish*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Evelyn Hope*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *The Boy and the Angel*, *One Word More*, *Hervé Riel*, *Pheidippides*.

REQUIREMENTS FOR ADMISSION

Study and Practice

This part of the examination presupposes the thorough study of each of the works named below. The examination will be upon subject, matter, form, and structure. In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

The books set for this part of the examination will be:

Shakspeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*, or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

FRENCH

A minimum of two years of French and German and a maximum of four years (not more than three in any one language) may be offered, and will be equated accordingly; either French or German will be accepted, but candidates are urged to offer at least one year of German. Two or three years of Latin will be allowed for the present as an equivalent for a corresponding amount of French or German.

ONE OR MORE, OPTIONAL

A (*First Year*)

This should cover the first part of Fraser and Squair's or Edgren's or Muzarelli's grammar, or an equivalent, including especially pronunciation, declension, the elementary rules of syntax, and translation into French (a part orally and a part in writing) of all the English exercises; and, in addition, the conjugation of the simple and compound tenses of the regular verbs and of the most common irregular verbs.

Not less than 100 duodecimo pages of some simple reader or text should be translated as prepared work; there should also be some practice in sight translation.

B (*Second Year*)

This should be devoted principally to the translation of simple modern prose, and should cover, in addition to the reading of the first year, not less than 300 duodecimo pages as prepared work and one-half of this amount at sight.

The grammar study should complete the entire list of irregular verbs and include the more difficult rules of syntax, particularly those concerning the use of the articles, pronouns, prepositions, and of the tenses and modes of verbs.

There should be constant practice in translating simple English into French orally and in writing.

The following are recommended as suitable texts from which to select: About's *Le Roi des montagnes*, the anonymous *La Main malheureuse*, Bruno's *Le Tour de la France*, Chateaubriand's *Atala*, Daudet's *Le Petit chosé* and his easier short stories, Dumas' *La Tulipe noire*, Erckmann-Chatrian's *Contes fantastiques*, Halévy's *L'Abbé Constantin*, Labiche and Martin's *Voyage de M Perrichon*, Lesage's *Gil Blas*, Merimée's *Colomba*, Verne's stories.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

C (Third Year)

This should include the translation of several intermediate texts, one at least to be in dramatic form: not less than 500 pages should be read as prepared work and one-half of this amount at sight.

The grammar study should be continued and the knowledge of French syntax reënforced.

About 50 duodecimo pages of English discourse should be translated into French.

The following are recommended as suitable texts from which to select: About's stories, Augier's dramas, Balzac's stories, Coppée's *On rend l'argent*, Corneille's dramas, France's *Le Crime de Sylvestre Bonnard*, Gautier's *Voyage en Espagne*, Hugo's *La Chute*, Bug Jargal, and dramas, Labiche's plays, Loti's *Pêcheur d'Islande*, selected stories of Maupassant, Michelet's historical writings, Molière's comedies, Racine's dramas, George Sand's stories, Sarcey's *Le Siège de Paris*, Scribe's plays, Thierry's historical writings.

GERMAN

A minimum of two years of German and French and a maximum of four years (not more than three in any one language) may be offered, and will be equated accordingly; either German or French will be accepted, but candidates are urged to offer at least one year of German. Two or three years of Latin will be allowed for the present as an equivalent for a corresponding amount of German or French.

ONE OR MORE, OPTIONAL

A (First Year)

The preparation should include a thorough grounding in pronunciation, in grammatical inflections, and in the principal parts and meanings of the strong and irregular verbs. The candidate should have acquired facility in turning simple English sentences into German. He should also be able to translate at sight easy German narrative prose, to which end he should have read 75 to 100 pages of simple text.

B (Second Year)

The preparation should be chiefly given to translation of intermediate German texts into English and the translation into German of moderately long English sentences and paragraphs.

Following is a list of German texts from which selections might be made, 150 to 200 pages to be read as prepared work, besides as much sight work as time admits:

Baumbach's *Der Schwiegersohn*, Riehl's *Burg Neideck* and *Der Fluch der Schönheit*, Freytag's *Die Journalisten*, Schiller's *Der Neffe als Onkel*, Wilhelm Tell, *Die Jungfrau von Orleans*, *Das Lied von der Glocke*, Fouqué's *Undine*, Lessing's *Minna von Barnhelm*.

REQUIREMENTS FOR ADMISSION

C (Third Year)

The preparation should include the translation into English of about 400 pages of German, of a degree of difficulty suggested by the following list of suitable texts from which to make a selection :

Schiller's *Geschichte des dreissigjährigen Kriegs* and *Maria Stuart*, Goethe's *Hermann und Dorothea*, *Egmont*, *Dichtung und Wahrheit*, books I to III, Freytag's *Soll und Haben*, abridged, Heine's *Die Harzreise*, Hauff's *Lichtenstein*, abridged, Scheffel's *Der Trompeter von Säckingen*.

The candidate should also have translated into German about 50 pages of connected English discourse, and have had as much practice as possible throughout the year in translation at sight.

HISTORY

United States history and civics alone is required, and is equated as one point; but any one or two other courses (ancient history, mediaeval and modern history, or English history) may be offered to make up the total number of points required.

REQUIRED

United States History and Civics

Candidates for admission are examined in the history of the United States, with special reference to the colonization of the several States, the forms of government which existed previous to the War for Independence, the causes and principal events of that war, the Period of the Confederation, and the Establishment of the Federal Constitution with the general history subsequent to that event.

Students must have reviewed the subject within the two years immediately preceding the application for admission.

OPTIONAL

Ancient History

Candidates should have a) a general knowledge of the constitution of the Roman republic under the domination both of the patriciate and of the nobility, and of the character of the monarchy established by Augustus; b) a good chronological acquaintance with the general political history of the republican period, especially in the last three centuries before Christ.

Candidates should be well acquainted with the physical conformation of the Italian peninsula, and should be able to name and locate the principal districts and peoples included in its boundaries.

An accurate knowledge is required of the main facts of Greek history of the fifth and fourth centuries before Christ. The student should be able to locate correctly the more important cities of Greece and the Asiatic coast, and to draw a general outline of the coast, placing the chief islands of the Ægean Sea.

Mediaeval and Modern History

Students should have a knowledge of the outlines of the period, with particular reference to the development of the social and political life.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

English History

The social and political development of England, with particular reference to the centuries since the Norman conquest.

LATIN

Two or three years of Latin will be allowed for the present as an equivalent for a corresponding amount of French or German.

ONE OR BOTH, OPTIONAL

A (*First Two Years*)

Grammar

Inflections and syntax.

Composition

Simple and compound sentences based on Cæsar.

Cæsar

Four books of the *Gallic War*. Any book of the *Civil War* will be accepted as a substitute for any book of the *Gallic War*; and for two books of Cæsar an equivalent amount of Nepos will be accepted.

B (*Third Year*)

Grammar

As in A.

Composition

Simple and compound sentences based on Cæsar and Cicero.

Cicero

Six orations.

MATHEMATICS

The requirement is algebra, plane geometry, and solid geometry, to be equated as three and one-half points. In 1910 and thereafter, plane trigonometry will be required also, to be equated as an additional half point.

REQUIRED

Algebra

Through the first seventeen chapters of Bowser's *College Algebra*, or an equivalent.

The student should be thoroughly drilled in the fundamental operations, factoring, greatest common divisor, least common multiple, fractions, equations of the first degree with one or more unknown quantities, problems which lead to equations of the first degree, involution and evolution of monomials and polynomials, and the square and cube root of numbers; the theory of exponents, radicals, properties of quadratic surds, square root of a binominal surd, solution of equations containing radicals, quadratic equations of one or more unknown quantities, simultaneous quadratic equations,

REQUIREMENTS FOR ADMISSION

equations of higher degrees than the second which may be reduced to the quadratic form and then solved by the methods of solving quadratics, ratio and proportion, arithmetic, geometric and harmonic progressions.

The student should form the habit of arranging his work, whether on the blackboard or on paper, in a neat and orderly manner. Special stress is laid upon the speed and accuracy of his work.

Plane Geometry

The whole of plane geometry is required, as contained in Bowser's, or an equivalent. Careful attention should be given to the "exercises in geometry," since much importance is attached to the student's ability to demonstrate original exercises.

Solid Geometry

The whole of solid geometry is required, as contained in Bowser's, or an equivalent. Careful attention should be given to the "exercises in geometry," as specified above for plane geometry.

REQUIRED AFTER 1909

Plane Trigonometry

Part I. of Bowser's *Elements of Trigonometry*, or an equivalent, will meet the requirement. The student should know the formulae and be able to derive them readily. Especial stress should be placed upon the solution of right and oblique triangles and upon the functions of angles in the different quadrants.

SCIENCE

One year's experimental science is required, either physics or chemistry, to be equated as one point; or both may be offered, and equated as two points. In 1912 and thereafter, a third science, i. e. a year's course in botany, or in zoölogy, or in botany and zoölogy, may be offered, to make up the total number of points required.

ONE OR BOTH

Physics

Candidates are required to show satisfactory acquaintance with any of the text-books used in approved schools. They are also requested to present their laboratory note-books.

Chemistry

Such knowledge of chemistry is required as may be obtained from a thorough study of Remsen's, Cooley's, or Steele's *Chemistry* complete.

ONE ONLY, OPTIONAL AFTER 1911

Botany

A year's study covering the equivalent of Bergen's *Foundations of Botany*, or Coulter's *Plants* or *Plant Studies*, with accompanying laboratory exercises.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

Zoölogy

A year's study covering the equivalent of Linville and Kelly's *General Zoölogy*, Jordan's *Animal Studies*, Galloway's *First Lessons*, or Colton's *Descriptive and Practical Zoölogy*, accompanied by laboratory work in each case.

Biology

A half year each, of botany and zoölogy, equivalent to the courses given in parts one and two respectively, of Hunter's *Elements of Biology*. In botany, a suitable equivalent would be Coulter's *Plant Relations* or *Plant Structures*, and in zoölogy, Jordan's *Animal Life* or *Animal Forms*, Kellogg's *First Lessons*, or Davison's *Practical Zoölogy*. It is desirable that there should be as much laboratory and field work as possible.

SHORT COURSE IN CERAMICS

The requirements for admission to the first year of this two years' course are identical with those for admission to the Freshman Class of the four-year courses (see page 24), except for practical clay-workers with at least one year's experience in some manufacturing branch of the ceramic industries. Of the latter it is required only that they should pass a satisfactory examination in arithmetic, including the metric system, in elementary chemistry (Steele's, Cooley's, or Remsen's *Chemistry*, or an equivalent textbook), and in elementary physics, as presented in any of the textbooks used in approved schools.

SHORT COURSES IN AGRICULTURE

There are no entrance examinations for admission to these courses. The students should, however, have a good common school education, in order to make the best use of the instruction given. All the courses will be open to persons of sixteen years of age and upwards.

COURSES OF STUDY

The complete course occupies four years, each year consisting of two terms, and leads to the degree of Bachelor of Science.

There are also four short courses, one of two years, in clay-working and ceramics, and three of twelve weeks each, in agriculture. No degree is conferred for the completion of these.

All students, except those taking the Short Courses in Agriculture, and practical clay-workers in the Short Course in Ceramics, are required to take exercises in English, as follows:

Essays, two each term; see English, 121.

Forensics, four times each term; see English, 122.

Military drill is required of all students in the four-year courses and in the Short Course in Ceramics, except the practical clay-workers in the latter.

At the end of the second term of senior year each candidate for a degree is required to write a thesis; see Graduation Theses, course 451.

In the allotment of hours in the science courses and in the military and physical training departments, hours not requiring previous preparation are equated as follows: military drill, target practice, work in the gymnasium or in the field under the direction of the Physical Instructor, and hours assigned to draughting, are reckoned on the basis of two to one; laboratory hours in experimental science are reckoned in general on the basis of two and one-half to one, fractions less than one-half to be disregarded, and one-half or greater to be reckoned as one.

FOUR-YEAR COURSES

The studies of freshman year, a part of the studies of sophomore year, and a few subjects of junior and senior years, are prescribed for all students pursuing this course.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

Freshman Year

During the freshman year the studies are the same for all members of the class, except in case of French and German. Freshmen entering without German, or with one year only, will take German; those entering with two or three years of German will take French.

Sophomore Year

At the end of freshman year each student shall notify the Secretary of the Faculty and the Registrar of his choice of one of the elective courses; of his choice between French and German if he falls in the class of students to whom this option is offered (see below); and in case he has selected as his elective course the General Science Course, his choice of one of the elective groups offered in the sophomore year of that course (see below). Before choosing their electives, students must consult the professors concerned, and at the beginning of the sophomore year students in the Technical Courses must consult the head of the technical course which they intend to pursue.

Eight courses of study, consisting of a general science course and seven technical science courses, are included in the schedule:

- 1 General Science Course
- 2 Civil Engineering
- 3 Mechanical Engineering
- 4 Electrical Engineering
- 5 Chemistry
- 6 Clay-working and Ceramics
- 7 Agriculture
- 8 Biology

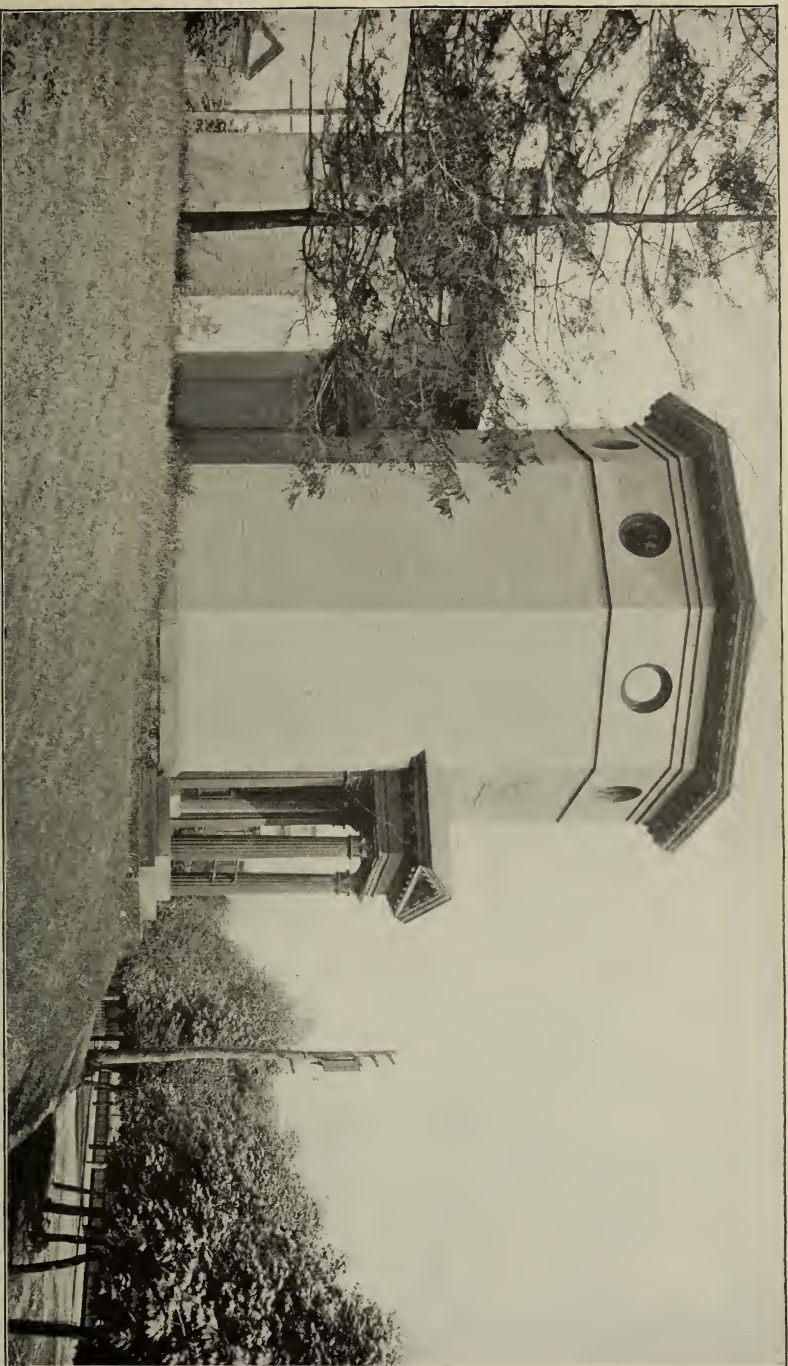
The Technical Courses embrace not only the special branches indicated by the names of the courses (civil engineering, mechanical engineering, electrical engineering, chemistry, ceramics, agriculture, biology), but also other subjects which aid in training intelligent men, whatever their occupation, for the wise and useful discharge of the duties of citizenship.

The General Science Course offers an opportunity in the first two years for a broad outlook over the field of science; in the junior and senior years the work is largely elective.

French and German are prescribed in all of these courses as follows: Sophomores who have entered without German, or with two or three years of German, will take German; Sophomores who have entered with one year only of German will take French, except those who have entered with two or three years of French in addition to the one year of German; these may choose either French or German in the sophomore year, subject to the approval of the head of the technical course, if such be pursued.

Technical Courses

The Technical Courses begin to diverge at the beginning of the sophomore year, the differentiation increasing each year thereafter. The course, and not the individual subject, is chosen, and transfers from one course to another are allowed only by permission of the Faculty, and on condition that all omitted work be made up.



The Daniel S. Schanck Observatory

COURSES OF STUDY

Students who have successfully completed one of these courses will be recommended to receive the degree of Bachelor of Science, the words, "in Civil Engineering," etc., being officially recorded, to correspond with the course taken.

At the beginning of senior year a choice is offered between two one-hour courses, in ethics and in political science, for the first term.

General Science Course, Sophomore Year

Sophomores in the General Science Course will choose, in addition to the required subjects, one of the following elective groups, consisting of five hours of work each:

Group 1. Pure mathematics (four hours) with those pursuing the Engineering Courses, and draughting (two hours=one).

Group 2. Mathematics (three hours) with those pursuing the Chemical and Ceramics Courses, and draughting (four hours=two).

Group 3. Sciences (five hours) with those pursuing the Biological Course.

Group 4. General chemistry (two hours) and chemical laboratory (eight hours=three), with those pursuing the Chemical Course.

General Science Course, Junior Year

At the end of the sophomore year each student in this course shall notify the Secretary of the Faculty and the Registrar of his choice of three elective courses, which are then pursued throughout the junior year, in addition to the prescribed schedule of studies.

Before choosing their electives students must consult the professors concerned: all choices are subject to the permission of the Faculty and the requirements of the schedule, and will be allowed only when the previous preparation of the student qualifies him for the work chosen.

In the junior year the following three-hour elective courses are offered:

- | | |
|------------------------------------|---------------------------|
| 1 Philosophy | 8 Mathematics |
| 2 History and Science of Education | 9 Physics |
| 3 History | 10 Chemistry |
| 4 Political Science | 11 Geology and Mineralogy |
| 5 English | 12 Biology and Entomology |
| 6 French | 13 Zoölogy and Botany |
| 7 German | |

General Science Course, Senior Year

At the beginning of the senior year two of the junior electives must be continued, but the third may be changed for any other elective of the senior year, the same rules applying, however, as in the choice of junior electives. The student must also choose between two courses of one hour each, in history of art and in political science, for the first term of senior year.

All the junior electives are continued as four-hour courses, and the following additional electives are offered:

- | | |
|------------|--------------|
| 14 Ethics | 16 Italian |
| 15 Spanish | 17 Astronomy |

Moreover, a two-hour course in Hebrew may be taken during the senior year in addition to the regular work, provided a satisfactory standing is maintained in the other studies; regular attendance upon the recitations and examinations is required.

SHORT COURSES

The short courses are essentially practical in character. The Short Course in Clay-working and Ceramics, of two years, is arranged especially for the benefit of clay-workers who desire to perfect themselves in their craft, but are unable to take the full course of four years. The work is prescribed throughout. The Short Courses in Agriculture, of twelve weeks each, are planned to fit men, capable in other respects, to take charge of farms, dairies, and orchards. They are three in number, namely:

- 1 General Agriculture
- 2 Dairy Farming
- 3 Fruit-growing and Market Gardening.

The work is prescribed throughout.

SCHEDULE OF STUDIES

GENERAL SCIENCE COURSE

FRESHMAN CLASS

PRESCRIBED FOR ALL

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
English	123, 124	3	English	123, 124	3
French, or German	141 (143), or 161 (165)	4	French, or German	142 (144), or 162 (166)	4
Mathematics	182, 184	5	Mathematics	184, 187	5
Graphics	241	4=2	Graphics	241	4=2
Chemistry	291	3	Chemistry	292	3
Military Drill	431	2=1	Military Drill	431	2=1

SOPHOMORE CLASS

PRESCRIBED FOR ALL

History	41	4	History	42	4
English	126	2	English	131	2
*French, or German	141 (143, 145, 147), or 167 (169)	3	*French, or German	142 (144, 146, 148), or 168 (170)	3
Physics	251	3	Physics	251	3
Military Drill	431	2=1	Military Drill	431	2=1

ELECTIVE (ONE GROUP ONLY)

GROUP 1

Mathematics	190	4	Mathematics	192	4
Graphics	242	2=1	Graphics	242	2=1

GROUP 2

Mathematics	189	3	Mathematics	191	3
Graphics	242	4=2	Graphics	242	4=2

*Elective in certain cases; see description of courses 145, 147, and 169, on subsequent pages.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GROUP 3

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Zoölogy	401	2	Astronomy	211	2
Zoölogy	402	3	Geology	331	3

GROUP 4

Chemistry	295	2	Chemistry	297	2
Laboratory	295	8=3	Laboratory	297	8=3

JUNIOR CLASS

PRESCRIBED FOR ALL

Ethics	1	3	Ethics	4	3
Philosophy	11	3	Philosophy	12	3
Military Drill	431	2=1	Military Drill	431	2=1
Military Science	432	2	Military Science	433	1

ELECTIVE (ANY THREE)

Philosophy	13	3	Philosophy	14	3
Pedagogy	31	3	Pedagogy	32	3
History	43	3	History	44	3
Political Science	61	3	Political Science	62	3
English	134	3	English	135	3
French	141 (143, 145, 147, 149)	3	French	142 (144, 146, 148, 150)	3
German	169 (171)	3	German	170 (172)	3
Mathematics	188	3	Mathematics	188	3
Physics	252	3	Physics	253	3
Chemistry	295 (301)	1	Chemistry	297 (301)	1
Laboratory	295 (302)	5=2	Laboratory	297 (303)	5=2
Biology	381	2	Entomology	421	2
Laboratory	382	3=1	Laboratory	421	3=1
Zoölogy	403	2	Botany	411	2
Laboratory	403	3=1	Laboratory	411	3=1

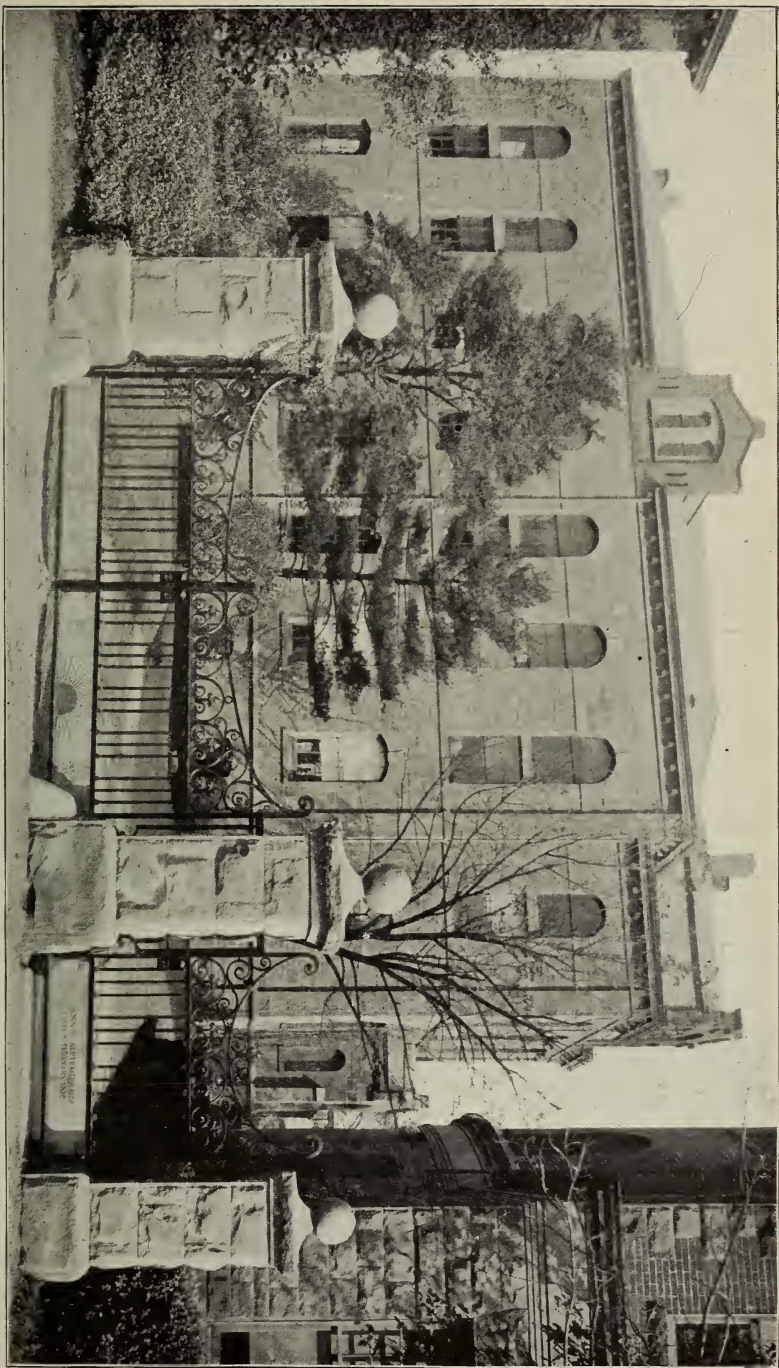
SENIOR CLASS

PRESCRIBED FOR ALL

History of Art	21	1	History of Art	21	1
Political Science	63	3	Political Science	65	4
Military Drill	431	2=1	Military Drill	431	2=1

ELECTIVE (ONE ONLY)

History of Art	22	1
Political Science	67	1



Baldwin Gates

SCHEDULE OF STUDIES

ELECTIVE (ANY THREE)

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Ethics	2	4	Ethics	2	4
Philosophy	15	4	Philosophy	16	4
Pedagogy	33	4	Pedagogy	34	4
History	45	4	History	46	4
Political Science	64	4	Political Science	66	4
English	128	4	English	129	4
French	145 (147, 151)	4	French	146 (148, 152)	4
Spanish	153	4	Spanish	154	4
Italian	155	4	Italian	156	4
German	173	4	German	174	4
Mathematics	196	4	Mathematics	196	4
Astronomy	213	4	Astronomy	214	4
Physics	256	4	Physics	257	4
Chemistry	301 (304, 306, 309)	1	Chemistry	301 (305, 306, 310)	1
Laboratory	302 (304, 306, 309)	7=3	Laboratory	303 (305, 306, 310)	7=3
Biology	384, 385	2	Entomology	422	2
Laboratory	384, 386	5=2	Laboratory	422	5=2
Zoölogy	405	2	Botany	412	2
Laboratory	405	5=2	Laboratory	412	5=2
Hebrew (extra)	111	2	Hebrew (extra)	111	2

TECHNICAL COURSES

FRESHMAN CLASS

PRESCRIBED FOR ALL

English	123, 124	3	English	123, 124	3
French, or	141, (143), or		French, or	142 (144), or	
German	161 (165)	4	German	162 (166)	4
Mathematics	182, 184	5	Mathematics	184, 187	5
Graphics	241	4=2	Graphics	241	4=2
Chemistry	291	3	Chemistry	292	3
Military Drill	431	2=1	Military Drill	431	2=1

SOPHOMORE CLASS

PRESCRIBED FOR ALL

English	126	2	English	131	2
*French, or	141 (143, 145, 147), or		*French, or	142 (144, 146, 148), or	
*German	167 (169)	3	*German	168 (170)	3
Physics	251	3	Physics	251	3
Military Drill	431	2=1	Military Drill	431	2=1

*Elective in certain cases; see description of courses 145, 147, and 169, on subsequent pages.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

ENGINEERING COURSES

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Mathematics	190, 195	7	Mathematics	192	4
Graphics	242	4=2	Civil Engineering	221	3
			Graphics	242	4=2

CIVIL AND ELECTRICAL ENGINEERING COURSES

SUMMER	COURSE	TOTAL HOURS
Civil Engineering	222	100

MECHANICAL ENGINEERING COURSE

Graphics	248	100
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CHEMICAL AND CERAMICS COURSES

Mathematics	189	3	Mathematics	191	3
Chemistry	293	2	Chemistry	296	2
Laboratory	293	10=4	Laboratory	296	10=4

CERAMICS COURSE

SUMMER	COURSE	TOTAL HOURS
Civil Engineering	222	100

AGRICULTURAL COURSE

Chemistry	294	2	Chemistry	297	2
Laboratory	294	5=2	Laboratory	297	5=2
Agriculture	361	3	Geology	331	3
Laboratory	362	5=2	Agriculture Laboratory	363	5=2

SUMMER	COURSE	TOTAL HOURS
Civil Engineering	222	100

BIOLOGICAL COURSE

Chemistry	294	2	Chemistry	297	2
Laboratory	294	5=2	Laboratory	297	5=2
Zoölogy	401, 402	5	Astronomy	211	2
			Geology	331	3

JUNIOR CLASS

PRESCRIBED FOR ALL

History	41	3	History	42	3
Military Drill	431	2=1	Military Drill	431	2=1
Military Science	432	2	Military Science	433	1

SCHEDULE OF STUDIES

CIVIL ENGINEERING COURSE

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Mathematics	193	5	Mathematics	194	4
Graphics	243	4=2	Civil		
Physics	254	2	Engineering	223, 225	7
Electrical			Graphics	243	4=2
Engineering	271	3			
SUMMER			COURSE	TOTAL HOURS	
Civil Engineering			224	100	

MECHANICAL AND ELECTRICAL ENGINEERING COURSES

Mathematics	193	5	Mathematics	194	4
Physics	254	2	Graphics	244	4=2
Electrical			Physics		
Engineering	271	3	Laboratory	255	5=2
Chemistry			Electrical		
Laboratory	299	5=2	Engineering	272	5

SUMMER	COURSE	TOTAL HOURS
Graphics and Electrical Engineering	249 (273)	100

CHEMICAL COURSE

Chemistry	301, 307, 312	9	Astronomy	211	2
Laboratory	302	8=3	Chemistry	301, 308	5
			Laboratory	303	8=3
			Geology		
			Laboratory	338, 339	8=3

CERAMICS COURSE

Physics	254	2	Chemistry		
Electrical			Laboratory	303	8=3
Engineering	271	3	Geology		
Chemistry	301	2	Laboratory	338, 339	8=3
Laboratory	302	8=3	Ceramics	351, 352	7
Ceramics	351	2			

AGRICULTURAL COURSE

Chemistry,			Agriculture	366 (413)	4
Laboratory	300	5=2	Laboratory	366 (413)	5=2
Agriculture	364	3	Botany	411	2
Biology	381	2	Laboratory	411	4=1½
Biology and			Entomology	421	2
Agriculture,			Laboratory	421	4=1½
Laboratory	382, 365	4=1½			
Zoölogy	403	2			
Laboratory	403	4=1½			

REPORT OF RUTGERS SCIENTIFIC SCHOOL

BIOLOGICAL COURSE

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Philosophy	11	3	Chemistry	308	3
Chemistry	307	3	Geology	340 (404)	1
Biology	381	2	Laboratory	338	5=2
Laboratory	382	3=1	Botany	411	2
Zoölogy	403	2	Laboratory	411	4=1½
Laboratory	403	3=1	Entomology	421	2
			Laboratory	421	4=1½

SENIOR CLASS

PRESCRIBED FOR ALL

Political Science	63	3	Political Science	65	4
Military Drill	431	2=1	Military Drill	431	2=1

ELECTIVE (ONE ONLY)

Ethics	3	1
Political Science	67	1

CIVIL ENGINEERING COURSE

Astronomy	212	3	Civil		
Civil			Engineering	227, 228, 229	8
Engineering	226	4	Graphics	245	4=2
Graphics	245	4=2	Geology	334	3
Mechanical					
Engineering	261	4			

MECHANICAL ENGINEERING COURSE

Graphics	247	2=1	Civil		
Mechanical			Engineering	227	2
Engineering	261, 262, 263	9	Graphics	247	2=1
Shop Work	265	8=3	Mechanical		
			Engineering	263, 264	7
			Shop Work	265	8=3

ELECTRICAL ENGINEERING COURSE

Graphics	246	2=1	Graphics	246	2=1
Mechanical			Electrical		
Engineering	262	3	Engineering	275, 277, 278	10
Electrical			Laboratory	279	5=2
Engineering	274, 276	7			
Laboratory	279	5=2			

CHEMICAL COURSE

Chemistry	313, 314, 315	10	Chemistry	313, 314, 315	7
Laboratory	309	8=3	Laboratory	310	8=3
			Geology	333	3

SCHEDULE OF STUDIES

CERAMICS COURSE

FIRST TERM	COURSES	HOURS	SECOND TERM	COURSES	HOURS
Mechanical			Geology	333	3
Engineering	262	3	Laboratory	354	10=4
Ceramics	353	6	Ceramics	354, 355	6
Laboratory	353	10=4			

AGRICULTURAL COURSE

Agriculture	367	4	Agriculture	369	4
Laboratory	368	5=2	Laboratory	370	5=2
Biology	383, 384, 385	4	Botany	412	2
Laboratory	383, 384, 386	8=3	Laboratory	412	4=1½
			Entomology	422	2
			Laboratory	422	4=1½

BIOLOGICAL COURSE

Chemistry,			Chemistry,		
Laboratory	311	3=1	Laboratory	311	3=1
Biology	383, 384, 385	4	Biology	387	4
Laboratory	383, 384, 386	6=2½	Laboratory	387	3=1
Zoölogy	405	4	Botany	412	2
Laboratory	405	4=1½	Laboratory	412	4=1½
			Entomology	422	2
			Laboratory	422	4=1½

CIVIL ENGINEERING

This course is designed to give the student a proper foundation in the elements of those sciences that are essential to fit him to enter with a fair knowledge of its principles upon the profession of civil engineering. It is recognized that an engineer must gain proficiency by practical experience, and that a college course should aim to give him an advantageous start by providing him with a well trained mind and a knowledge of the fundamental principles applying to engineering practice. To this end some subjects of general educational value are required in this course; a thorough drill in mathematics is given as a necessary preparation for the technical subjects of the junior and senior years and as essential for the equipment of an educated engineer.

The subjects of a technical character embrace plane surveying in all its different branches; railroad engineering; the materials of construction and their uses; the mechanics and strength of materials; the designing of bridges and other structures, including the determination of the stresses in the members of such structures by both the analytic and graphic methods; sanitary science as it applies more particularly to the supply of pure water to towns and the building of the necessary water works, the building of sewers, and the disposal of sewage; the making of pavements and roads; hydraulic engineering; geodesy. Field practice in surveying and railroad location is given at the end of the college year, when the whole time for two or more weeks is devoted to it. Draughting is continued throughout the four years in connection with the subjects taught in the class-room.

SCHEDULE OF STUDIES

CIVIL ENGINEERING

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or		French 142 (144), or	
German 161 (165)	4	German 162 (166)	4
Algebra 182 and		Trigonometry 184 and	
Trigonometry 184	5	Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or		French 142 (144, 146, 148), or	
German 167 (169)	3	German 168 (170)	3
Analytic Geometry 190	4	Calculus 192	4
Descriptive Geometry 195	3	Surveying 221	3
Draughting 242	4=2	Draughting 242	4=2
Elementary Physics 251	3	Elementary Physics 251	3
Military Drill 431	2=1	Military Drill 431	2=1

SUMMER	COURSE	TOTAL HOURS
Surveying	222	100

JUNIOR YEAR

European History 41	3	United States History 42	3
Calculus 193	5	Mechanics 194	4
Draughting 243	4=2	Railway Engineering 223	3
Elementary Mechanism 254	2	Roofs and Bridges 225	4
Electrical Engineering 271	3	Draughting 243	4=2
Military Drill 431	2=1	Military Drill 431	2=1
Military Regulations 432	2	Military Regulations 433	1

SUMMER	COURSE	TOTAL HOURS
Railroad Surveying	224	100

SENIOR YEAR

Ethics 3, or		Constitutional Law 65	4
International Law 67	1	Hydraulic Engineering 227	2
Political Economy 63	3	Geodetic Surveying 228	3
Practical Astronomy 212	3	Materials and Methods of	
Highway and Sanitary		Construction 229	3
Engineering 226	4	Draughting 245	4=2
Draughting 245	4=2	Applied Geology 334	3
Mechanics and Strength of		Military Drill 431	2=1
Materials 261	4		
Military Drill 431	2=1		

MECHANICAL ENGINEERING

The course in mechanical engineering is designed to give a broad training in general engineering, special attention being given to those subjects which will fit the student to enter upon the profession of mechanical engineering. To this end the course is arranged so as to give a thorough training in the fundamental principles underlying mechanical engineering and to fit the student to apply these principles to the solution of practical problems.

The first two years of the course are largely devoted to the study of languages, chemistry, physics, and mathematics, thus laying the foundation for the technical subjects proper which for the most part are concentrated in the junior and senior years.

The course includes work in elementary mechanism, mechanics, strength of materials, machine-design, thermodynamics, steam and hydraulic engineering, the mechanical engineering of power plants, and a brief course in the elements of electrical engineering. Instruction in draughting continues throughout the course and aims to teach the student to prepare the dimensioned drawings, tracings, and blue prints which are required in practice.

The instruction in the mechanical laboratory is intended to illustrate the principles taught in the class-room and to give practice in the experimental work which a mechanical engineer is frequently called upon to perform, such as measurement of power transmitted by belts and shafting, engine tests, boiler tests, etc.

SCHEDULE OF STUDIES

MECHANICAL ENGINEERING

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Analytic Geometry 190	4	Calculus 192	4
Descriptive Geometry 195	3	Surveying 221	3
Draughting 242	4=2	Draughting 242	4=2
Elementary Physics 251	3	Elementary Physics 251	3
Military Drill 431	2=1	Military Drill 431	2=1

SUMMER	COURSE	TOTAL HOURS
Machine Draughting	248	100

JUNIOR YEAR

European History 41	3	United States History 42	3
Calculus 193	5	Mechanics 194	4
Elementary Mechanism 254	2	Draughting 244	4=2
Elements of Electrical En- gineering 271	3	Physics, Laboratory 255	5=2
Qualitative Analysis 299	5=2	Dynamo-electric Ma- chinery 272	5
Military Drill 431	2=1	Military Drill 431	2=1
Military Regulations 432	2	Military Regulations 433	1

SUMMER	COURSE	TOTAL HOURS
Draughting and Dynamo Laboratory	249 (273)	100

SENIOR YEAR

Ethics 3, or International Law 67	3	Constitutional Law 65	4
Political Economy 63	3	Hydraulic Engineering 227	2
Draughting 247	2=1	Draughting 247	2=1
Mechanics and Strength of Ma- terials 261	4	Power Plants 263	2
Thermodynamics 262	3	Steam Engineering 264	5
Power Plants 263	2	Shop Work 265	8=3
Shop Work 265	8=3	Military Drill 431	2=1
Military Drill 431	2=1		

ELECTRICAL ENGINEERING.

The course in electrical engineering is designed to give the student a broad education in those general and scientific subjects which are of fundamental importance, and also to give him a thorough training in those special subjects which will best fit him after graduation to enter upon the profession of electrical engineering.

The general subjects of the course are for the most part concentrated in the first two years, and the junior and senior years are largely devoted to those special subjects involving the applications of electrical theory, to the construction and operation of dynamo electrical machinery, to telegraphy, telephony, lighting, power transmission, and railway work. Those studies in the allied departments of civil and mechanical engineering which are of peculiar value to the electrical engineer are included in the course. Great importance is attached to the study of the theory of electricity, upon which all electrical engineering depends.

The laboratory instruction begins with work in the chemical and general physics laboratories, and is followed by general electrical measurements; this leads up to the work in the dynamo laboratory, covering actual tests on direct and alternating current generators and motors, rotary converters, transformers, and other electrical apparatus. This work is carried on with the purpose not only of familiarizing the student with the operation of electrical apparatus, but also with the purpose of developing in him habits of accurate observation and of directing his attention to the important questions of economy of time and precision of results.

SCHEDULE OF STUDIES

ELECTRICAL ENGINEERING

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Analytic Geometry 190	4	Calculus 192	4
Descriptive Geometry 195	3	Surveying 221	3
Draughting 242	4=2	Draughting 242	4=2
Elementary Physics 251	3	Elementary Physics 251	3
Military Drill 431	2=1	Military Drill 431	2=1

SUMMER	COURSE	TOTAL HOURS
Surveying	222	100

JUNIOR YEAR

European History 41	3	United States History 42	3
Calculus 193	5	Mechanics 194	4
Elementary Mechanism 254	2	Draughting 244	4=2
Elements of Electrical En- gineering 271	3	Physics, Laboratory 255	5=2
Qualitative Analysis 299	5=2	Dynamo-electric Ma- chinery 272	5
Military Drill 431	2=1	Military Drill 431	2=1
Military Regulations 432	2	Military Regulations 433	1

SUMMER	COURSE	TOTAL HOURS
Draughting and Dynamo Laboratory	249 (273)	100

SENIOR YEAR

Ethics 3, or International Law 67	1	Constitutional Law 65	4
Political Economy 63	3	Draughting 246	2=1
Draughting 246	2=1	Alternating Currents 275	5
Thermodynamics 262	3	Electric Power Trans- mission 277	2
Alternating Currents 274	5	Electric Railways 278	3
Telephones and Tele- graphs 276	2	Dynamo Laboratory 279	5=2
Dynamo Laboratory 279	5=2	Military Drill 431	2=1
Military Drill 431	2=1		

CHEMISTRY

The department of chemistry, in a variety of courses, offers to the students ample facilities to prepare themselves in modern laboratory practice.

The work is begun in the first year with a course in general chemistry, with lectures, demonstrations, and recitations. Throughout the second and third years the students are given a thorough training in analytical methods, in qualitative and quantitative chemistry, and this is followed in the fourth year by a study of synthetical methods in the organic laboratory, together with a course in applied chemistry and a comprehensive review of physical chemistry.

The full course includes not only theoretical, analytical, and industrial chemistry, but also those collateral sciences such as physics, mathematics, etc., which have been found by experience to be required by the chemist if his training is to give him that broad education necessary to answer the multiplying demands made upon his skill.

To students intending to pursue the study of medicine after graduation opportunity is given to prepare for meeting the requirements now prescribed for candidates by the foremost medical schools of the country.

On graduation the students should be able to enter at once into positions open for chemists in factories or technical and analytical laboratories.

SCHEDULE OF STUDIES

CHEMISTRY

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Analytic Geometry 189	3	Calculus 191	3
Elementary Physics 251	3	Elementary Physics 251	3
Experimental Chemistry 293	2	Qualitative Analysis 296	2
Laboratory 293	10=4	Laboratory 296	10=4
Military Drill 431	2=1	Military Drill 431	2=1

JUNIOR YEAR

European History 41	3	United States History 42	3
Quantitative Analysis 301	2	Astronomy 211	2
Laboratory 302	8=3	Quantitative Analysis 301	2
Organic Chemistry 307	4	Laboratory 303	8=3
Stoichiometry 312	3	Organic Chemistry 308	3
Military Drill 431	2=1	Mineralogy 338	5=2
Military Regulations 432	2	Crystallography 339	3=1
		Military Drill 431	2=1
		Military Regulations 433	1

SENIOR YEAR

Ethics 3, or International Law 67	1	Constitutional Law 65	4
Political Economy 63	3	Organic Chemistry, Laboratory 310	8=3
Organic Chemistry, Laboratory 309	8=3	Physical Chemistry 313	3
Physical Chemistry 313	5	Journal Chemistry 314	1
Journal Chemistry 314	1	Industrial Chemistry 315	3
Industrial Chemistry 315	4	General Geology 333	3
Military Drill 431	2=1	Military Drill 431	2=1

CLAY-WORKING AND CERAMICS

The course in clay-working and ceramics is designed to give the student a preparation for the industry which no course less specialized than this can furnish. To this end he is trained as a ceramic chemist; and, in order to prepare him to assume ultimately the responsibility of a superintendent or manager of works and to deal with problems of operation and maintenance of manufacturing processes, he is given instruction in the necessary engineering subjects.

The technical training consists of lecture and laboratory courses. Besides French, German, and mathematics, it includes such fundamental subjects as general and analytical chemistry, physics, geology, mineralogy, and crystallography. The purely ceramic studies deal with the chemical and the mechanical operations of the industry, embracing all phases, mining of the raw material, manufacture of ware, the faults and the difficulties, the laws of drying and firing, and kilns and driers. The engineering subjects taught are draughting, surveying, the elements of mechanism, the elements of electrical engineering, and the study of steam boilers and engines.

The student demonstrates in the laboratory the principles he has been taught. The laboratory course is a practical one made possible by the extensive and superior mechanical equipment, affording opportunity for the reproduction of all the ordinary processes of clay-working. As a further help visits are made from time to time to nearby factories engaged in clay-working operations.

SCHEDULE OF STUDIES

CLAY-WORKING AND CERAMICS

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Analytic Geometry 189	3	Calculus 191	3
Elementary Physics 251	3	Elementary Physics 251	3
Experimental Chemistry 293	2	Qualitative Analysis 296	2
Laboratory 293	10=4	Laboratory 296	10=4
Military Drill 431	2=1	Military Drill 431	2=1

SUMMER
Surveying

COURSE
222

TOTAL HOURS
100

JUNIOR YEAR

European History 41	3	United States History 42	3
Elementary Mechanism 254	2	Quantitative Analysis, Laboratory 303	8=3
Elements of Electrical En- gineering 271	3	Mineralogy 338	5=2
Quantitative Analysis 301	2	Crystallography 339	3=1
Laboratory 302	8=3	Origin and Nature of Clays 351	3
Origin and Nature of Clays 351	2	Ceramic Calculations 352	4
Military Drill 431	2=1	Military Drill 431	2=1
Military Regulations 432	2	Military Regulations 433	1

SENIOR YEAR

Ethics 3, or International Law 67	1	Constitutional Law 65	4
Political Economy 63	3	General Geology 333	3
Thermodynamics 262	3	Glazes 354	3
Clays and Bodies 353	6	Laboratory 354	10=4
Laboratory 353	10=4	Driers and Kilns 355	3
Military Drill 431	2=1	Military Drill 431	2=1

AGRICULTURE

The four-year course in agriculture leads to the degree of Bachelor of Science. It is designed to give a broad education and a thorough training in those branches of natural science which are the basis of scientific agriculture. While practical work is not required, the students are expected to acquire through their contact with the soil, the plant, and the animal, in the various laboratories, such a knowledge of agricultural technique as will make them efficient practical farmers, teachers, and investigators, for which there is a growing demand. The branches of study especially emphasized are chemistry, physics, biology, botany, and entomology. The general study of these subjects is supplemented in the junior and senior years by special laboratory and field work, which is intended to familiarize the students with the application of principles in farm practice. The relations of chemistry, physics, and biology to soil fertility and its maintenance, are clearly pointed out, as well as the need for and influence of manures, fertilizers, and soil amendments. The relations of botany, biology, and chemistry, in the selection and rotation of crops, in the composition of animal and human foods and manufactured farm and dairy products, and in the economic development of the farm, is made a prominent part of the instruction in these branches. The selection, development, and improvement of the live-stock of the farm, and a study of the interdependence of animal husbandry and crop-growing are an important part of the practical work required in the various laboratories, now well equipped for instruction along this line.

The study of the principles of entomology is supplemented by laboratory and field work, in which the economic relations of injurious and helpful insects are demonstrated.

SCHEDULE OF STUDIES

AGRICULTURE

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Elementary Physics 251	3	Elementary Physics 251	3
Experimental Chemistry 294	2	Qualitative Analysis 297	2
Laboratory 294	5=2	Laboratory 297	5=2
Soil Physics 361	3	Elementary Geology 331	3
Laboratory 362	5=2	Farm Mechanics 363	5=2
Military Drill 431	2=1	Military Drill 431	2=1

SUMMER
Surveying

COURSE
222

TOTAL HOURS
100

JUNIOR YEAR

European History 41	3	United States History 42	3
Agricultural Analysis, Laboratory 300	5=2	Horticulture 366 (413) Laboratory 366 (413)	4 5=2
Soil Fertility 364	3	Plant Anatomy 411	2
General Bacteriology 381	2	Laboratory 411	4=1½
Laboratory 382, 365	4=1½	Anatomy of Insects 421	2
Invertebrates 403	2	Laboratory 421	4=1½
Laboratory 403	4=1½	Military Drill 431	2=1
Military Drill 431	2=1	Military Regulations 433	1
Military Regulations 432	2		

SENIOR YEAR

Ethics 3, or International Law 67	1	Constitutional Law 65	4
Political Economy 63	3	Animal Husbandry 369	4
Agronomy 367	4	Milk-testing 370	5=2
Laboratory 368	5=2	Plant Physiology 412	2
Animal Diseases 383	2	Laboratory 412	4=1½
Laboratory 383	4=1½	Systematic Entomology 422	2
Embryology and Ecology 384, 385	2	Laboratory 422	4=1½
Laboratory 384, 386	4=1½	Military Drill 431	2=1
Military Drill 431	2=1		

BIOLOGY

This course is designed to give a broad education in the principal natural sciences preparatory to a professional pursuit of medicine, sanitation, education, etc.

Study in the biological sciences is conducted in the three co-ordinated departments of botany, entomology, and biology. The last-mentioned includes two series of sub-courses under the captions "Zoölogy" and "Biology," respectively.

The departmental subjects have been grouped into "units" so that students in the General Science Course can elect to recite with those in the Biological Course to such extent as may be desired. The "unit" represented in the sophomore year is a general culture course in zoölogy, physiology, geology, and astronomy. Special attention is given in the first term to phylogeny and neurology, as preparatory to psychology.

In the junior year, two units of technical work begin, each extending through two years, with a third unit added in the senior year, as shown below. Students in the General Science Course who expect to study medicine should take at least two units for two years.

I. *Zoölogy-Botany* (in the first and second terms, respectively, of both years). The anatomy of invertebrates is taught in the junior year; that of vertebrates in the senior year.

II. *Biology-Entomology* (in the first and second terms, respectively, of both years). Junior biology is represented by bacteriology; senior biology, by embryology, ecology, and technique.

III. *Pathology-Hygiene* (senior year only).

SCHEDULE OF STUDIES

BIOLOGY

FRESHMAN YEAR

FIRST TERM	HOURS	SECOND TERM	HOURS
Rhetoric 123	1	Rhetoric 123	1
English Literature 124	2	English Literature 124	2
French 141 (143), or German 161 (165)	4	French 142 (144), or German 162 (166)	4
Algebra 182 and Trigonometry 184	5	Trigonometry 184 and Analytic Geometry 187	5
Draughting 241	4=2	Draughting 241	4=2
General Chemistry 291	3	General Chemistry 292	3
Military Drill 431	2=1	Military Drill 431	2=1

SOPHOMORE YEAR

English Literature 126	2	American Literature 131	2
French 141 (143, 145, 147), or German 167 (169)	3	French 142 (144, 146, 148), or German 168 (170)	3
Elementary Physics 251	3	Astronomy 211	2
Experimental Chemistry 294 Laboratory 294	5=2	Elementary Physics 251 Qualitative Analysis 297	3 2
Physiology and Morphology 401	2	Laboratory 297	5=2
General Zoölogy 402	3	Elementary Geology 331	3
Military Drill 431	2=1	Military Drill 431	2=1

JUNIOR YEAR

Psychology 11	3	United States History 42	3
European History 41	3	Organic Chemistry 308	3
Organic Chemistry 307	3	Mineralogy 338	5=2
General Bacteriology 381 Laboratory 382	2 3=1	Invertebrate Paleon- tology 340 (404)	1
Invertebrates 403 Laboratory 403	2 3=1	Plant Anatomy 411 Laboratory 411	2 4=1½
Military Drill 431	2=1	Anatomy of Insects 421	2
Military Regulations 432	2	Laboratory 421	4=1½
		Military Drill 431	2=1
		Military Regulations 433	1

SENIOR YEAR

Ethics 3, or International Law 67	1	Constitutional Law 65	4
Political Economy 63	3	Organic Chemistry, Laboratory 311	3=1
Organic Chemistry, Laboratory 311	3=1	Physiology and Hygiene 387	4
Animal Diseases 383 Laboratory 383	2 2=1	Laboratory 387	3=1
Embryology and Ecology 384, 385	2	Plant Physiology 412 Laboratory 412	2 4=1½
Laboratory 384, 386	4=1½	Systematic Entomology 422	2
Vertebrates 405 Laboratory 405	4 4=1½	Laboratory 422	4=1½
Military Drill 431	2=1	Military Drill 431	2=1

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SHORT COURSE IN CERAMICS

FIRST YEAR.

FIRST TERM	HOURS	SECOND TERM	HOURS
Elementary Physics 251	3	Elementary Physics 251	3
General Chemistry 291	3	General Chemistry 292	3
Experimental Chemistry 293	2	Qualitative Analysis 296	2
Laboratory 293	10=4	Laboratory 296	10=4
Origin and Nature of Clays 351	2	Origin and Nature of Clays 351	3
Military Drill 431	2=1	Ceramic Calculations 352	4
		Military Drill 431	2=1

SECOND YEAR.

Draughting 241	4=2	Draughting 241	4=2
Elementary Mechanism 254	2	Elementary Geology 331	3
Clays and Bodies 353	6	Glazes 354	3
Laboratory 353	12=5	Laboratory 354	12=5
Military Drill 431	2=1	Driers and Kilns 355	3
Military Regulations 432	2	Military Drill 431	2=1
		Military Regulations 433	1

SCHEDULE OF STUDIES

SHORT COURSES IN AGRICULTURE

PRESCRIBED FOR ALL

Soils: Composition, Classification, and Improvement.
Manures and Fertilizers.

LABORATORY

Soils.

GENERAL AGRICULTURE

General Farm-crops, Cereals, and Grasses.
Composition of Forage-crops and Feeds; Rations.
Breeds of Animals; Care and Management.
Buildings and Fences: Location, Arrangement, and Construction.
Insects and Diseases affecting Plants and Animals.
Drainage, Water-supply, Sanitation, Ventilation.

LABORATORY

Plans of Buildings and Fences.
Stock-judging.
Insects.

DAIRY FARMING

Forage-crops and Feeds; Rations.
Breeds of Dairy-cows; Care and Management.
Buildings, Stalls, and Floors.
Milk and its Products.
Insects and Diseases.
Drainage, Water-supply, Ventilation.

LABORATORY

Judging Animals.
Testing Milk.
Separating and Handling Milk.

FRUIT-GROWING AND MARKET GARDENING

Market Garden-crops and Methods of Culture.
Fruit-crops; Methods of Culture and Care.
Marketing Fruits and Vegetables.
Spraying for Insects and Diseases.
Propagation and Breeding of Plants.
Construction of Hotbeds, Laying-out of Ground, Use of Tools and Machinery.

LABORATORY

Judging Fruits.
Insects and Diseases.
Grafting and Budding.

DESCRIPTION OF STUDIES

ETHICS AND EVIDENCES OF CHRISTIANITY

Doctor SCHENCK

GENERAL SCIENCE COURSE

1 *Practical Ethics*

The method of instruction is by lectures and quizzes. A study is made of man's moral powers. A fair view is given of the various systems of ethics, and of the teachings of the great philosophers on the subject. Emphasis is then placed upon the moral standards of Christian lands. The aim of the course is to cultivate the elements of virtue and honor, and to form good citizens.

Three hours a week during the first term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

2 *History of Ethics*

The object of the course is the training of the mental powers and the acquiring of knowledge. The ethical teachings of the philosophers of all lands and ages are passed in review. Kant's *Practical Reason*, Martineau's *Types of Ethical Theory*, Spencer's *Data of Ethics*, and Seth's *Ethical Principles* are read.

Four hours a week during the senior year.

TECHNICAL COURSES, ELECTIVE

3 *Ethics*

A brief study, from the historical viewpoint, of the various systems of principles and rules concerning man's moral obligations.

One hour a week during the first term of the senior year.

GENERAL SCIENCE COURSE

4 *Evidences of Christianity*

The method of instruction is by lectures and quizzes. The object of the course is to show the grounds upon which belief in Christianity is based, and to give a proper estimate of the distinctive elements of Christian civilization.

Three hours a week during the second term of the junior year.

DESCRIPTION OF STUDIES

LOGIC AND MENTAL PHILOSOPHY

Professor CHAMBERLAIN

GENERAL SCIENCE COURSE

BIOLOGICAL COURSE

11 *Psychology*

This course is designed to give the student a knowledge of the essential facts and fundamental laws of the mind. It aims to make the student acquainted with the normal human mind, with a view to showing its dependence upon the nervous system. Emphasis is laid upon the mental processes important to intellect and character. (Halleck's *Psychology and Psychic Culture*.)

Three hours a week during the first term of the junior year.

GENERAL SCIENCE COURSE

12 *Logic*

The aim of this course is to give the student a knowledge of the science of discursive thought, of the principles of inductive and deductive inference and of their application to reasoning. (Jevon's *Elementary Lessons in Logic*.)

Three hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

13 *History of Ancient Philosophy*

This course traces the development of philosophy through the early Greek, the Graeco-Roman, and the mediaeval periods. The aim is to present the main contributions of the different periods to the development of philosophical problems and their solutions, and to correlate these solutions to the civilizations under which they arose. This course serves as a general introduction to the study of philosophy. (Weber's *History of Philosophy* and Roger's *Student's History of Philosophy*.)

Three hours a week during the first term of the junior year.

14 *History of Modern Philosophy*

A continuation of the preceding course and more particularly a study of the development of modern philosophic thought, based upon brief examinations of the leading speculative systems and the most prominent thinkers of the period. The course will pay special attention to the history of philosophy in Germany and England. The lectures will be supplemented by prescribed reading. (Weber's *History of Philosophy* and Roger's *Student's History of Philosophy*.)

Three hours a week during the second term of the junior year.

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15 *Philosophy: History of Its Problems*

This course deals with the problems of philosophy historically. It follows the evolution of these problems from their earliest times to the present, and notes each result gained as a starting point for further philosophical endeavor. The study is necessarily somewhat confined to those greater problems whose very prominence indicates their significance and their vital hold upon human experience. (Janet and Séailles's *History of the Problems of Philosophy*, 2 vols.)

Four hours a week during the first term of the senior year.

16 *Philosophy: History of Its Problems*

A continuation of the preceding course, supplemented by lectures and occasional class papers on specified philosophical problems, with the purpose of exhibiting their essential points and their relation to other problems.

Four hours a week during the second term of the senior year.

HISTORY OF ART

Professor VAN DYKE

In connection with this department and working in unison with it, Professor CHAMBERLAIN, of the department of philosophy, will give half a dozen lectures on the history and theory of aesthetics, and Professor STEVENSON, of the department of history, several lectures upon the history of the Renaissance, with special reference to the fine arts. These lectures will be delivered in Professor VAN DYKE'S room, the time to be announced later.

GENERAL SCIENCE COURSE

21 *Sculpture and Painting*

The history and criticism of these arts from the beginning to the present time. (Frothingham and Marquand's *History of Sculpture*; and Van Dyke's *History of Painting*.)

One hour a week during the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

22 *Architecture*

A course of lectures on the history of architecture. These lectures will be supplementary to those of the preceding course and will be delivered by one of the professors of a neighboring university.

One hour a week during the first term of the senior year.

DESCRIPTION OF STUDIES

HISTORY AND ART OF TEACHING

Professor PAYSON

GENERAL SCIENCE COURSE, ELECTIVE

31 *History of Education*

A general survey of the history of education by text-book, lectures, discussions, readings.

Three hours a week during the first term of the junior year.

32 *History of Education*

This is a continuation of the preceding course. It takes up more in detail the study of special school systems, ancient and modern, the great educational classics, the work of prominent educators. The history of education in the United States is studied. Lectures, discussions, reports, readings, text-books.

Three hours a week during the second term of the junior year.

33 *Principles of Education*

Memory, imagination, habit, apperception, interest, the effect of fatigue, the course of study in secondary schools, the relative value of studies, and other topics pertaining to the philosophy of education are considered. Lectures, discussions, reports, readings.

Four hours a week during the first term of the senior year.

34 *Principles of Education*

A continuation of the preceding course. Practical application of principles; investigation of methods in secondary schools; school-management; current educational topics; New Jersey school law. Lectures, discussions, reports, readings, text-book.

Four hours a week during the second term of the senior year.

HISTORY

Professor STEVENSON

ALL FOUR-YEAR COURSES

41 *European History*

The course is planned to cover European history in outline from the beginning of the Roman Empire to the close of the seventeenth century. The method of instruction in general is topical. Students are required to make extensive use of the books of reference in the college library, and are given direction in methods of historical work.

Four hours a week for Sophomores in the General Science Course and three for Juniors in the Technical Courses, during the first term.

42 *European History and United States History*

The study of European history in outline will be continued to the beginning of the nineteenth century, followed by a study of United States history. The method of work as outlined in course 41 will be followed.

Four hours a week for Sophomores in the General Science Course and three for Juniors in the Technical Courses, during the second term.

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GENERAL SCIENCE COURSE, ELECTIVE

43 *The Period of the Renaissance and the Reformation*

The first half of the course will have to do with the Renaissance period in its political, intellectual, social, religious and artistic phases. Lectures and library investigations with critical examination of reports growing out of these studies.

Three hours a week during the first term of the junior year and the first six weeks of the second term.

44 *English Constitutional History*

Instruction will be given by text-book, lectures, and required readings on assigned topics. This work is to be taken up at the conclusion of the course on the periods of the Renaissance and the Reformation.

Three hours a week during the last twelve weeks of the second term of the junior year.

45 *Europe in the Nineteenth Century*

This course is designed to be a critical study of the history of the European states during the nineteenth century. Attention in particular will be given to the problems of reconstruction following the Napoleonic era, to the constitutional and administrative problems, and to a comparison of the same with like problems in the United States.

Four hours a week during the first term of the senior year.

46 *Political Institutions and Theories*

A critical study of the history of political institutions and theories followed by a brief course in historical geography.

Four hours a week during the second term of the senior year.

HISTORY AND POLITICAL SCIENCE

Professor SCOTT

GENERAL SCIENCE COURSE, ELECTIVE

61 *History of Civilization*

Guizot's *History of European Civilization* is used as a guide book; collateral readings are assigned.

Three hours a week during the first term of the junior year.

62 *Elements of Political Science*

Leacock's *Elements of Political Science* is used as a text-book. The theory and operation of the federative principle in the American system of government is made the subject of special study.

Three hours a week during the second term of the junior year.

DESCRIPTION OF STUDIES

ALL FOUR-YEAR COURSES

63 *Political Economy*

The class uses as a text-book Gide's *Principles of Political Economy* and receives instruction also through lectures and informal discussions. Topics are assigned for special study. At the examination each student submits his term note-book.

Three hours a week during the first term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

64 *Economics*

After an inquiry into the history and nature of political economy, topics in each of the departments of the science are assigned to individual members of the class, and some economic problems are considered in detail.

Four hours a week during the first term of the senior year.

ALL FOUR-YEAR COURSES

65 *Constitutional Law*

Cooley's *Principles of Constitutional Law* is used as a text-book. Lectures on various features of the constitution in their historical development are given, and occasionally an important decision of the Supreme Court is analyzed. Notes of the daily class-room work are required of each student, and the note-books are submitted for examination at the close of the term.

Four hours a week during the second term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

66 *Constitutional Law*

The significance and scope of the fundamental principles of the American organic law are studied in the decisions of the Supreme Court of the United States given in the volumes of reports and as treated in Thayer's *Cases in Constitutional Law*.

Four hours a week during the second term of the senior year.

ALL FOUR-YEAR COURSES, ELECTIVE

67 *International Law*

The peculiar character of this branch of law is emphasized in lectures, and its development, authorities, and sources, and its present status are explained.

One hour a week during the first term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

HEBREW

Doctor RAVEN

GENERAL SCIENCE COURSE, EXTRA ELECTIVE

111 *Hebrew*

This course is intended especially for students preparing for the ministry, although it is open to others. The work includes a thorough mastery of the rudiments of the language and rapid reading in selected portions of the Old Testament.

Two hours a week during the senior year.

ENGLISH LANGUAGE AND LITERATURE

Professor MULFORD: courses 121, 128, 129, and 135.

Associate Professor WHITMAN: courses 121, 123, 124, 126, 128, 129, 131, and 134.

Mr. BARBOUR: course 122.

ALL FOUR-YEAR COURSES

SHORT COURSE IN CERAMICS

121 *Essays*

Two essays are written each term, being required of all students except those taking the Short Courses in Agriculture and practical clay-workers in the Short Course in Ceramics.

The Librarian responds to requests for lists of books and articles relating to the subjects assigned, and students are expected to make these exercises occasions for a widened acquaintance with literature.

Twice a term throughout the entire course.

122 *Elocution*

Declamations and extempore speaking are required during the freshman (first) year, and original orations and extempore speaking during the sophomore (second) year. In the junior and senior years, original orations and extempore speaking are required in the General Science Course, but in the Technical Courses extempore speaking alone is required. These are prescribed for all students except those taking the Short Courses in Agriculture and practical clay-workers in the Short Course in Ceramics.

The aim is to develop effective delivery in the forms of expression. The scope of instruction embraces physical culture, respiration, training of the voice, and cultivation of the powers by which thought is analyzed and presented in synthetic expression.

Four times each term throughout the entire course.

ALL FOUR-YEAR COURSES

123 *Rhetoric and Composition*

A practical course in composition, involving recitations, conferences, and frequent themes on assigned subjects. Genung's *Working Principles of Rhetoric* is used as a text-book.

One hour a week during the freshman year.

DESCRIPTION OF STUDIES

124 *English Literature*

A general outline course based upon Moody and Lovett's *History of English Literature*. The required readings are designed to illustrate the different forms and periods of English literature.

Two hours a week during the freshman year.

126 *English Literature*

A reading course. A few masterpieces are carefully studied with the aim of developing an appreciation of the best poetry and prose. Among the authors read are Chaucer, Shakspeare, Milton, Bacon, De Quincey, Ruskin, Tennyson.

Two hours a week during the first term of the sophomore year.

GENERAL SCIENCE COURSE,* ELECTIVE

128 *English Literature: Modern Prose Writers*

A course of lectures, recitations, readings, and reports upon De Quincey, Carlyle, Macaulay, Ruskin, Arnold, Newman, Thackeray, Stevenson, Pater, and others.

Four hours a week during the first term of the senior year.

129 *English Literature: the Modern Poets*

A course of lectures, recitations, readings, and reports upon Wordsworth, Byron, Shelley, Keats, Tennyson, the Brownings, Swinburne, and others.

Four hours a week during the second term of the senior year.

ALL FOUR-YEAR COURSES

131 *American Literature*

A general outline course based upon Wendell and Greenough's *History of American Literature*, with special reference to the larger life of the nation and to English literature. Page's *Chief American Poets* is required for collateral reading.

Two hours a week during the second term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE

134 *Old English*

An elementary course in the grammar and literature of Old English. Cook's *First Book in Old English* is used as a text-book, in conjunction with Bright's edition of the Gospel of St. John in West Saxon.

Three hours a week during the first term of the junior year.

135 *Middle English*

Selections in prose and verse from Emerson's *Middle English Reader*; Osgood's edition of *The Pearl*; Langland's *Piers Plowman*; further readings in Chaucer.

Three hours a week during the second term of the junior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

ROMANCE LANGUAGES

Professor DAVIS: courses 142, 143, 147—150, 155, and 156.

Associate Professor BILLETDOUX: courses 141, 144—146, and 151—154.

In the four-year courses, students entering with two or more years of German will take French in the freshman year; those entering with one year of German and one year or none of French, will take French in the sophomore year; those entering with one year of German and two or more years of French may choose between French and German in the sophomore year, subject to the approval of the head of the technical course, if such be pursued; those entering with no German cannot take French unless pursuing the General Science Course.

Only those students are allowed to take the senior elective in French who have entered with at least two years of French or who have already completed one year of French in college.

ALL FOUR-YEAR COURSES, PARTLY ELECTIVE

French A is for beginners in the language. It is prescribed for Freshmen who have entered with two or more years of German and for Sophomores who have entered with one year only of German, and elective for Juniors in the General Science Course.

141 *French A: Grammar*

The rudiments of the grammar are studied: pronunciation, inflection, the elementary laws of syntax and their application. These are accompanied by the translation of simple prose, writing from dictation, and oral and written exercises in composition.

Four hours a week for Freshmen and three for Sophomores and Juniors, during the first term.

142 *French A: Reading*

The time is largely devoted to translation and sight-reading, with constant reference to morphology and idiom in connection with the text. The reading matter, simple in character and selected from modern prose-writers, consists for the most part of *contes*, *nouvelles*, novels, and short plays; it is more mature in character with the upper classes.

Four hours a week for Freshmen and three for Sophomores and Juniors, during the second term.

ALL FOUR-YEAR COURSES, PARTLY ELECTIVE

Prerequisite, one year of entrance French. The following courses are prescribed for Freshmen who have entered with two or more years of German and Sophomores who have entered with one year only of German, and elective for Juniors in the General Science Course.

DESCRIPTION OF STUDIES

143 *French B: Modern Prose*

This consists in part of translation and sight-reading of simple prose of the nineteenth century, selected from such authors as About, Augier, Chateaubriand, Daudet, Dumas *père*, Erckmann-Chatrian, Labiche, Maupassant, Mérimée, Scribe, and Jules Verne. A part of the time is spent in a summary review of the grammar. Writing from dictation, composition, study of definitions.

Four hours a week for Freshmen and three for Sophomores and Juniors, during the first term.

144 *French B: Modern Prose*

More difficult texts are undertaken, including such modern authors as Balzac, Coppée, Anatole France, Gautier, Hugo, Loti, George Sand, Sarcey, and Thierry. Writing from dictation, composition, study of definitions.

Four hours a week for Freshmen and three for Sophomores and Juniors, during the second term.

ALL FOUR-YEAR COURSES, PARTLY ELECTIVE

Prerequisite, course 142 or two years of entrance French. The following courses are prescribed for Freshmen who have entered with two years of German; elective for Sophomores who have entered with one year of German (subject to the approval of the head of the technical course, if such be pursued), and elective for Juniors and Seniors in the General Science Course. The character of the work is graded according to class.

145 *French C: Fiction*

A study of modern fiction: special attention will be paid to the Romantic School; texts of various writers, from Rousseau to Hugo, will be read, and the authors' lives, writings, and style briefly considered. Some time is also devoted to a rapid review of French syntax and to the application of the rules to the texts studied. Composition and oral practice.

Four hours a week for Freshmen and Seniors and three for Sophomores and Juniors, during the first term.

146 *French C: General Survey, Fiction*

A brief general survey of the field of French literature is followed by further study of the novel, with special attention to Realism. Such authors as Balzac, Flaubert, Daudet, and Maupassant will be read. Composition and oral practice.

Four hours a week for Freshmen and Seniors and three for Sophomores and Juniors, during the second term.

ALL FOUR-YEAR COURSES, ELECTIVE

Prerequisite, course 144 or three years of entrance French. The following courses may be taken by Sophomores who have entered with one year of German (subject to the approval of the head of the technical course, if such be pursued), and by Juniors and Seniors in the General Science Course. The character of the work is graded according to class.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

147 *French D: Modern Drama*

The drama of the first part of the nineteenth century, particularly that of Victor Hugo, will be studied. Composition and oral practice.

Three hours a week for Sophomores and Juniors and four for Seniors, during the first term.

148 *French D: Modern Drama*

The drama of the latter part of the nineteenth century, especially that of Augier, Dumas *filis*, Rostand, and Maeterlinck, will be studied. Composition and oral practice.

Three hours a week for Sophomores and Juniors and four for Seniors, during the second term.

GENERAL SCIENCE COURSE, ELECTIVE

Prerequisite, course 146 or 148.

149 *French E: Eighteenth Century*

A study of the writers of the eighteenth century, especially Voltaire. Composition and oral practice.

Three hours a week during the first term of the junior year.

150 *French E: Eighteenth Century*

A continuation of the study of the eighteenth century: Rousseau, Beaumarchais, the Encyclopedists. Composition and oral practice.

Three hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

Prerequisite, course 146 or 148.

151 *French F: Classic Drama*

A study of the dramatic literature of the seventeenth century, particularly that of Corneille and Racine. Composition and oral practice.

Four hours a week during the first term of the senior year.

152 *French F: Classic Drama*

Further study of the writers of the seventeenth century, especially Molière. Composition and oral practice.

Four hours a week during the second term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

153 *Spanish: Elementary Course*

Pronunciation, inflection, the laws of syntax and their application. Translation of simple prose, writing from dictation, oral and written exercises in composition.

Four hours a week during the first term of the senior year.

DESCRIPTION OF STUDIES

154 *Spanish: Modern Prose*

Translation and sight-reading, with constant reference to morphology and idiom in connection with the text. Attention will be paid to the more important contemporary writers: Palacio Valdés, Pérez Galdós, Alarcón, Echegaray.

Four hours a week during the second term of the senior year.

155 *Italian: Elementary Course*

An elementary course in grammar, composition, and reading.

Four hours a week during the first term of the senior year.

156 *Italian: Dante*

A study of Dante's *Inferno*, with collateral reading.

Four hours a week during the second term of the senior year.

GERMAN LANGUAGE AND LITERATURE

Professor NEWTON

German is a required subject: (a) with Freshmen who have entered without German; (b) with Freshmen who have entered with only one year of German; (c) with Sophomores who have entered with two or three years of German. In all other cases it is an elective subject.

The text-books and texts named in the following courses are intended merely to be representative and will be changed from year to year.

ALL FOUR-YEAR COURSES

Courses 161, 162 are required of Freshmen who have offered no German for admission.

161 *Elementary German*

Thomas's *Practical German Grammar*, part 1; Carruth's *German Reader*.

Four hours a week during the first term of the freshman year.

162 *Elementary German*

Heyse's *L'Arrabbiata*; Baumbach's *Die Nonna*; Storm's *Immensee*; composition.

Four hours a week during the second term of the freshman year.

ALL FOUR-YEAR COURSES

Courses 165, 166 are for Freshmen who have offered one year only of German for admission.

165 *Intermediate German*

Seidel's *Leberecht Hühnchen*; Baumbach's *Der Schwiegersohn*; Schiller's *Wilhelm Tell*; composition.

Four hours a week during the first term of the freshman year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

166 *Intermediate German*

Riehl's *Der Fluch der Schönheit*; Hauff's *Lichtenstein* (abridged); scientific German.

Four hours a week during the second term of the freshman year.

ALL FOUR-YEAR COURSES

Courses 167, 168 are required of Sophomores who have entered with two years of German or who have taken courses 161, 162.

167 *Advanced German*

Review of grammar; Gerstäcker's *Irrfahrten*; Riehl's *Burg Neideck*; Freytag's *Soll und Haben* (abridged); composition.

Three hours a week during the first term of the sophomore year.

168 *Advanced German*

Thiergen's *Am deutschen Herde*; Beresford-Webb's *German Historical Reader*; Dippold's *Scientific German Reader*.

Three hours a week during the second term of the sophomore year.

ALL FOUR-YEAR COURSES, PARTLY ELECTIVE

Courses 169, 170 are required of Sophomores who have entered with three years of German; are elective (subject to the approval of the head of the technical course, if such be pursued) for Sophomores who, having entered with two or more years of French, have taken courses 161, 162, and elective for Juniors in the General Science Course.

169 *Advanced German*

The classical drama: Schiller's *Wallenstein*; Goethe's *Egmont*; Lessing's *Emilia Galotti*; composition.

Three hours a week during the first term of the sophomore or junior year.

170 *Advanced German*

Schoenfeld's *German Historical Prose*; Tombo's *Deutsche Reden*; Brandt and Day's *German Scientific Reading*.

Three hours a week during the second term of the sophomore or junior year.

GENERAL SCIENCE COURSE, ELECTIVE

Courses 171, 172 are elective for Juniors who have taken courses 167, 168 or 169, 170.

171 *Advanced German*

Course in nineteenth century fiction: Freytag's *Die verlorene Handschrift*, Sudermann's *Frau Sorge*, Isolde Kurz's *Die Humanisten*, Fontane's *Vor dem Sturm*.

Three hours a week during the first term of the junior year.

DESCRIPTION OF STUDIES

172 *Advanced German*

Course in nineteenth century drama: Von Kleist's *Der Prinz von Homburg*, Körner's *Zriny*, Grillparzer's *Sappho*, Wilbrandt's *Der Meister von Palmyra*.

Three hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

Courses 173, 174 are for all Seniors who elect German.

173 *Advanced German*

Brief history of German literature: Wenckebach's *Die Meisterwerke des Mittelalters*; Lessing's *Nathan der Weise*; Scheffel's *Ekkehard*; composition.

Four hours a week during the first term of the senior year.

174 *Advanced German*

Goethe and Goethe's *Faust*.

Four hours a week during the second term of the senior year.

MATHEMATICS

Professor PRENTISS: courses 193, 194, and 196.

Associate Professor BREAZEAL: courses 189—192.

Associate Professor MORRIS: course 195.

Mr. PRATT: courses 182, 184, and 187.

ALL FOUR-YEAR COURSES

182 *Algebra*

Some of the topics studied are the elements of complex numbers, review of the quadratic, including its graph, undetermined coefficients and partial fractions, binomial theorem for rational exponents, series, logarithms, the theory of equations, and solutions of the cubic and biquadratic, including Horner's method for solving numerical equations.

Five hours a week during thirteen weeks of the first term of the freshman year.

184 *Trigonometry*

This course includes the development of formulae for the solution of right and oblique triangles in both plane and spherical trigonometry.

Five hours a week during parts of the first and second terms of the freshman year.

187 *Analytic Geometry*

Point; right line; transformation of coördinates; circle.

Five hours a week during a part of the second term of the freshman year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GENERAL SCIENCE COURSE, ELECTIVE

Prerequisite, course 191 or 192.

188 *Analytic Geometry and Calculus*

This course is in continuation of course 186 or 192, and consists in advanced work in analytic geometry and the calculus.

Three hours a week during the junior year.

GENERAL SCIENCE COURSE, ELECTIVE CHEMICAL AND CERAMICS COURSES

189 *Analytic Geometry and Calculus*

Plane and solid analytic geometry; differential calculus begun.

Three hours a week during the first term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE ENGINEERING COURSES

190 *Analytic Geometry and Differential Calculus*

Conic sections completed; higher plane curves; analytic geometry of three dimensions. Calculus begun.

Four hours a week during the first term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE CHEMICAL AND CERAMICS COURSES

191 *Calculus*

Differential calculus completed; integral calculus.

Three hours a week during the second term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE ENGINEERING COURSES

192 *Calculus*

The differential calculus is completed and the integral calculus begun.

Four hours a week during the second term of the sophomore year.

ENGINEERING COURSES

193 *Calculus and Mechanics*

Integral calculus completed; analytic mechanics begun; composition and resolution of forces acting on a particle and on a rigid body; couples; centers of mass; laws of friction; numerous practical examples.

Five hours a week during the first term of the junior year.

DESCRIPTION OF STUDIES

194 *Mechanics*

Kinematics; motion of projectiles; kinetics; laws of motion; impact; work and energy; moments of inertia; rotary motion; numerous practical examples.

Four hours a week during the second term of the junior year.

195 *Descriptive Geometry*

A recitation course embracing problems of the point, line, and plane; the classification of lines and surfaces; problems in surface tangencies; intersections and development of surfaces; shades, shadows, and perspectives.

Three hours a week during the first term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE

Prerequisite, course 188.

196 *Higher Mathematics*

Among the subjects offered are: theory of equations, analytic geometry of three dimensions, differential equations, theory of functions, analytic mechanics, mathematical analysis.

Four hours a week during the senior year.

ASTRONOMY

Professor PRENTISS

GENERAL SCIENCE COURSE, ELECTIVE

CHEMICAL AND BIOLOGICAL COURSES

This is intended for Sophomores in the General and Biological Courses and for Juniors in the other courses.

211 *Astronomy*

The study of the principal facts relating to the sun, moon, planets, stars, and other heavenly bodies. The daily recitations are supplemented by illustrated lectures on the new astronomy, and on modern methods and instruments of astronomical research; and by observations made in the Schanck Observatory.

Two hours a week during the second term of the sophomore or junior year.

CIVIL ENGINEERING COURSE

212 *Practical Astronomy*

This course is arranged to give to Civil Engineering students a practical knowledge of astronomy to meet the needs of the profession. The course includes: spherical coördinates, transformation of coördinates, correction and reduction of observations; theory and use of the sextant, the transit instrument, engineer's transit, and the solar compass; determination of time, latitude, longitude, and azimuth from observations; and the use of the Schanck Observatory.

Three hours a week during the first term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GENERAL SCIENCE COURSE, ELECTIVE

Prerequisite, course 188, 191, or 192.

213 *Theoretical and Practical Astronomy*

Spherical astronomy, coördinate systems, theory of astronomical instruments, reduction of observations, method of least squares, exercises in logarithmic computation; observatory work.

Four hours a week during the first term of the senior year.

214 *Theoretical and Practical Astronomy*

Celestial mechanics, fundamental principles and definitions; rectilinear motion, central forces, the potential and attraction of masses; problems of two, three, and n bodies; calculation of orbits; observatory work.

Four hours a week during the second term of the senior year.

CIVIL ENGINEERING

Professor TITSWORTH: courses 223, 226, 228, and 229

Professor PRENTISS: course 227

Associate Professor MORRIS: courses 221 and 222

ENGINEERING COURSES

221 *Surveying*

This is a recitation course in the study of instruments and their adjustments, and in the theory of chain, compass, transit, and plane-table surveying, and leveling; and in methods of computing areas and laying out and dividing land.

Three hours a week during the second term of the sophomore year.

CIVIL ENGINEERING AND ELECTRICAL ENGINEERING COURSES

AGRICULTURAL AND CERAMICS COURSES

222 *Field Practice in Surveying*

Practical applications in the field of the methods of surveying taught in the classroom.

One hundred hours during the sophomore-junior summer vacation.

CIVIL ENGINEERING COURSE

223 *Railway Engineering*

This is a recitation course embracing the reconnoissance and location of railroads; problems in simple, reversed, compound, and transition curves; turnouts, crossings, and frogs; setting of slope stakes; making of profiles and cross-sections; calculation of amount of excavations, embankments, and earth-work.

Three hours a week during the second term of the junior year.

DESCRIPTION OF STUDIES

224 *Field Practice in Railroad Surveying*

The reconnoissance, preliminary, and final locations, and the levels, of a short line of railroad, are made.

One hundred hours during the junior-senior vacation.

225 *Stresses in Roofs and Bridges*

This includes a course of methods of determining analytically the maximum and minimum stresses in the members of roof and bridge trusses of different designs, due to dead, snow, and wind loads; the maximum and minimum moments, shears, and stresses in the members of different types of bridge trusses, due to a uniform live load, and to locomotive and train loads, when extending over the whole or a part of the truss.

Four hours a week during the second term of the junior year.

226 *Highway and Sanitary Engineering*

This begins with a recitation and lecture course of 34 exercises, embracing the principles of road and street construction, and their maintenance, and the study of the properties of the materials used in their construction. This is followed by a recitation and lecture course of 34 exercises, treating of sewerage and house drainage; of the best methods of city sewerage, and of the treatment and disposal of sewage.

Four hours a week during the first term of the senior year.

CIVIL ENGINEERING AND MECHANICAL ENGINEERING COURSES

227 *Hydraulic Engineering*

This course embraces the fundamental principles of hydrostatics and hydraulics, and their practical applications to problems in engineering. The subjects treated are: stability of dams and embankments; flow through orifices and over weirs; flow in pipes; flow of water in open channels; gauging of streams and water-courses; impact upon flat and curved vanes; hydraulic motors and centrifugal pumps.

Two hours a week during the second term of the senior year.

CIVIL ENGINEERING COURSE

228 *Geodetic Surveying*

This is a lecture and recitation course treating of the measurement of arcs to determine the figure of the earth; of the measurement of base lines, and their reduction to sea level; of the measurement of horizontal angles, and their adjustment by the method of least squares; of the astronomical and trigonometric determination of latitude, longitude, and azimuth. Practical examples taken from the field notes of the United States Coast and Geodetic Survey are required to be worked by the student.

Three hours a week during the second term of the senior year.

229 *Materials and Methods of Construction*

This is a lecture and recitation course to give the student an acquaintance with the properties of the various materials used in engineering structures, with the manufacture of such material and with the methods of use in the various engineering structures.

Three hours a week during the second term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GRAPHICS

Professor TITSWORTH: courses 243 and 245

Associate Professor MORRIS: courses 241 and 242

Associate Professor THOMPSON: courses 246 and 249

Mr. PRATT: courses 241 and 242

ALL FOUR-YEAR COURSES

SHORT COURSE IN CERAMICS

241 *Draughting*

Instruction is given in plain lettering; in the use of draughting instruments; in drawing simple designs; in the construction and use of scales; in the construction of geometric problems; in the projections of geometric solids on horizontal, vertical, perpendicular, and supplementary planes; in the intersection and development of surfaces; in shades, shadows, perspectives, and free-hand drawing.

Four hours a week during the freshman year in the four-year courses and the second year in the Short Course.

GENERAL SCIENCE COURSE, ELECTIVE

ENGINEERING COURSES

242 *Draughting*

A course is given in descriptive geometry problems in the point, line, and plane; in single-curved, double-curved, warped and convolute surfaces; in tangent planes to surfaces; in the intersection and development of surfaces; in shades and shadows, and perspectives; in isometric and oblique projections.

Four hours a week during the sophomore year, except for students in the General Course who have elected Mathematics 190, 192; two hours a week for the latter.

CIVIL ENGINEERING COURSE

243 *Draughting*

Practice in properly forming and spacing letters; in freehand lettering; in drawing titles for maps; in plain and colored topography.

Four hours a week during the junior year.

MECHANICAL ENGINEERING AND ELECTRICAL ENGINEERING COURSES

244 *Draughting*

The preparation of complete drawings of machine details and assembled machines.

Four hours a week during the second term of the junior year.

DESCRIPTION OF STUDIES

CIVIL ENGINEERING COURSE

245 *Draughting*

A course in the graphical determination of powers, roots, and areas, of stresses in roof and bridge members, and other applications of graphical methods; tracing curves showing results of statistical data and mechanical movements; details of roof and bridge design; thesis.

Four hours a week during the senior year.

ELECTRICAL ENGINEERING COURSE

246 *Draughting*

A course in the preparation of working drawings of electrical machinery or appliances.

Two hours a week during the senior year.

MECHANICAL ENGINEERING COURSE

247 *Draughting*

Practical applications of the principles of machine-design.

Two hours a week during the senior year.

248 *Machine-Draughting*

Practice in reading machine-drawings, and in the methods and technique of making machine-drawings.

One hundred hours during the sophomore-junior vacation.

MECHANICAL ENGINEERING AND ELECTRICAL ENGINEERING COURSES

249 *Machine-drawing and Dynamo Laboratory*

The elements of machine-drawing, and electrical laboratory work covering the measurements of resistance, current, electromotive force, capacity, etc. See Electrical Engineering, 273.

One hundred hours during the junior-senior vacation, commencing 18th June, 1908.

PHYSICS

Professor VAN DYCK

ALL FOUR-YEAR COURSES

SHORT COURSE IN CERAMICS

251 *Elementary Physics*

The presentation is by lectures and recitations based on Carhart's *University Physics*. Recitations are both oral and written, special attention being given to deduction of the general from particulars, as well as to inferences from general principles.

Three hours a week during the sophomore year in the four-year courses and during the first year in the Short Course.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GENERAL SCIENCE COURSE, ELECTIVE

The two following courses are intended to familiarize students with the use of instruments of measurement, and also with methods of practically working out problems in the various branches of physics. They are open only to those who elect mathematics.

252 *Laboratory Course and Recitations*

Fundamental measurements and experiments under the head of mechanics.

Three hours a week during the first term of the junior year.

253 *Laboratory Course and Recitations*

Experiments under heat and light.

Three hours a week during the second term of the junior year.

ENGINEERING AND CERAMICS COURSES

SHORT COURSE IN CERAMICS

254 *Elementary Mechanism*

The text-book is Kerr's *Power and Power-transmission*.

Two hours a week during the first term of the junior year in the four-year courses and of the second year in the Short Course.

MECHANICAL ENGINEERING AND ELECTRICAL ENGINEERING COURSES

255 *Physical Laboratory*

Experiments under mechanics, heat, light, and sound, with note-book of work done, and examination at the end of the term.

Five hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

The two following courses are open only to those who have taken the courses in physical laboratory and mathematics of the junior year.

256 *Electricity and Magnetism*

Laboratory and recitation course in electricity and magnetism.

Four hours a week during the first term of the senior year.

257 *Selected Subjects*

Laboratory and recitation course in selected subjects.

Four hours a week during the second term of the senior year.

DESCRIPTION OF STUDIES

MECHANICAL ENGINEERING

Professor TITSWORTH: course 261

Professor —: courses 262—265

CIVIL ENGINEERING AND MECHANICAL ENGINEERING COURSES

261 *Mechanics and Strength of Materials*

A course treating of the properties of materials used in engineering; of their elastic and ultimate strength; of their elastic and ultimate deformation; of the theory of beams and columns; of torsion of shafts; of impact, and fatigue of materials; and of the mathematical theory of elasticity.

Four hours a week during the first term of the senior year.

MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING, AND CERAMICS COURSES

262 *Thermodynamics*

Elementary thermodynamics of the steam engine. The thermal efficiencies of different types of engines and boilers, and their operation and management.

Three hours a week during the first term of the senior year.

MECHANICAL ENGINEERING COURSE

263 *Power Plants and Power-transmission*

This course treats of the relation and coördination of the various parts of the complete power plant, and the methods of determining the efficiency of the plant.

Two hours a week during the senior year.

264 *Steam Engineering*

This course embraces advanced thermodynamics and mechanics in their application to the production, transmission, and measurement of steam power; it treats of the properties of gases and vapors, especially steam; of the steam injector; and of hot-air and gas engines.

Five hours a week during the second term of the senior year.

265 *Shop Work*

Operating the machine lathe, planer, and other machines, with the use of drills, taps, dies, reamers, etc.; testing pressure gauges, springs, etc.; constructing parts of machines.

Eight hours a week during the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

ELECTRICAL ENGINEERING

Associate Professor THOMPSON

ENGINEERING AND CERAMICS COURSES

271 *Elements of Electrical Engineering*

A review of elementary electricity and magnetism with reference to their application to the dynamo. Special attention is given to the operation, regulation, management, and methods of testing dynamos and motors. Illustrative problems.

Three hours a week during the first term of the junior year.

MECHANICAL ENGINEERING AND ELECTRICAL ENGINEERING COURSES

272 *Dynamo-electrical Machinery*

The construction, operation and control of direct-current machinery; station equipment and wiring; cost of electrical energy; characteristic curves; armature windings; dynamo-design. Illustrative problems.

Five hours a week during the second term of the junior year.

273 *Dynamo Laboratory and Machine-drawing*

The elements of machine-drawing, and electrical laboratory work covering the measurements of resistance, current, electromotive force, capacity, etc. See Graphics, 249.

One hundred hours during the junior-senior vacation, commencing 18th June, 1908.

ELECTRICAL ENGINEERING COURSE

274 *Alternating Currents*

A general survey of the elementary theory of alternating currents, and study of the theory, characteristics, and operation of alternators, alternating current motors, rotary converters, and transformers. Illustrative problems.

Five hours a week during the first term of the senior year.

275 *Alternating Currents*

This is a continuation of course 274. Advanced studies of transformers, induction motors, and synchronous motors. Calculation of alternating current apparatus.

Five hours a week during the second term of the senior year.

276 *Telephones and Telegraphs*

A study of the physical theory and operation of various forms of telephonic and telegraphic transmitting and receiving apparatus and systems.

Two hours a week during the first term of the senior year.

277 *Electric-power Transmission*

A study of the application of electricity to power-transmission, with special reference to long distance power-transmission.

Two hours a week during the second term of the senior year.

DESCRIPTION OF STUDIES

278 *Electric Railways*

A study of the application of electricity to railway operation, including the construction, operation, and equipment of electric railways.

Three hours a week during the second term of the senior year.

279 *Dynamo Laboratory*

This course is designed to familiarize the student with the methods of testing and operating ordinary types of direct current machinery.

Five hours a week during the first term of the senior year.

280 *Dynamo Laboratory*

This course is designed to familiarize the student with the methods of testing and operating the ordinary types of alternating current machinery and apparatus.

Five hours a week during the second term of the senior year.

CHEMISTRY

Professor WRIGHT: courses 291, 292, 306—311, and 315

Associate Professor SPEYERS: courses 300—305 and 312—314

Associate Professor DE REGT: courses 293—299

ALL FOUR-YEAR COURSES

SHORT COURSE IN CERAMICS

291 *General Chemistry*

An experimental lecture and recitation course in which the principles of chemistry are studied. The isolation, properties, and uses of the elements and their compounds are taken up in detail. The various laws and theories are discussed in order to show their application to the science of chemistry. The applications of chemistry in the industrial world and the utility of chemical preparations are studied.

Three hours a week during the first term of the freshman (or first) year.

292 *General Chemistry*

A continuation of the preceding course, the greater part of the time, however, being devoted to a study of the metallic elements and their compounds.

Three hours a week during the second term of the freshman (or first) year.

CHEMICAL AND CERAMICS COURSES

SHORT COURSE IN CERAMICS

293 *Experimental Chemistry*

The first few weeks of the term are devoted to a study of the principles of chemistry, the student obtaining the facts at first hand by a study of the more important elements and compounds. The various reactions and methods of blow-pipe analysis are taken up as preliminary to the qualitative analysis that follows. Qualitative analysis is begun in this term, the various reactions of the metals with the reagents being studied.

Twelve hours a week during the first term of the sophomore year in the four-year courses, and of the first year in the Short Course.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

AGRICULTURAL AND BIOLOGICAL COURSES

294 *Experimental Chemistry*

The work of this course is of a broad general character. It comprises a study of the more important elements and compounds, and the synthetical preparation of various substances, and their uses.

Seven hours a week during the first term of the sophomore year.

GENERAL SCIENCE COURSE, ELECTIVE

The following may be taken by Sophomores in the General Science Course, and by Juniors in the same course who have not taken it previously.

295 *Experimental Chemistry*

A study of the elements and their compounds. The experimental determination and investigation of the fundamental facts and principles of chemistry.

Ten hours a week for Sophomores and six for Juniors, during the first term.

CHEMICAL AND CERAMICS COURSES

SHORT COURSE IN CERAMICS

296 *Qualitative Analysis*

A continuation of the work begun in the first term. The theory and methods of refined analysis are studied in detail, accompanied by laboratory work on the various reactions of the bases and acids. The analysis of simple and complex substances.

Twelve hours a week during the second term of the sophomore year in the four-year courses, and of the first year in the Short Course.

GENERAL SCIENCE COURSE, ELECTIVE

AGRICULTURAL AND BIOLOGICAL COURSES

The following is prescribed for Sophomores in the technical courses and elective for Sophomores in the General Science Course; also for Juniors in the General Science Course who have not taken it previously.

297 *Qualitative Analysis*

The department of the bases and acids with the various reagents. The analysis of simple and complex substances.

Seven hours a week in the technical courses; ten hours for Sophomores and six hours for Juniors, in the General Science Course, during the second term.

MECHANICAL AND ELECTRICAL ENGINEERING COURSES

299 *Qualitative Analysis*

A laboratory course in which are performed the reactions by which the various bases and acids are determined. Methods of analysis studied and substances analyzed.

Five hours a week during the first term of the junior year.

DESCRIPTION OF STUDIES

AGRICULTURAL COURSE

300 *Agricultural Analysis, Laboratory*

This is a laboratory course consisting of a complete analysis of barium chlorid, a volumetric analysis, and three analyses of carbon compounds. The students will be instructed in the Kjeldahl method of nitrogen determination and in the use of the polariscope.

Five hours a week during the first term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

CHEMICAL AND CERAMICS COURSES

Prerequisite, course 296 or 297. The following courses are elective for Juniors and Seniors in the General Science Course and prescribed for Juniors in the technical courses.

301 *Quantitative Analysis*

This course consists of recitations on selected portions of Cairns' *Quantitative Analysis*, those substances being considered which the student analyzes in the laboratory.

One hour a week in the General Science Course and two hours in the Chemical Course during the junior or senior year; in the Ceramics Course during the first term only of the junior year.

302 *Quantitative Analysis, Laboratory*

This is a laboratory course embracing the analysis of substances of known composition.

Five hours a week for Juniors in the General Science Course, and eight hours for all others, during the first term of the junior or senior year.

303 *Quantitative Analysis, Laboratory*

This is a laboratory course embracing the analysis of substances of unknown composition.

Five hours a week for Juniors in the General Science Course, and eight hours for all others, during the second term of the junior or senior year.

GENERAL SCIENCE COURSE, ELECTIVE

The following courses may be taken by Seniors in the General Science Course who have had two years only of chemistry in college.

304 *Quantitative Analysis*

The class-room work, which occupies about one hour a week, is intended to enable the student to perform intelligently the operations in the laboratory.

The laboratory work consists in performing the most important operations in quantitative analysis.

Eight hours a week during the first term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

305 *Quantitative Analysis*

The class-room work of the preceding course is continued.

The laboratory work consists of the analysis of substances of unknown quantitative composition.

Eight hours a week during the second term of the senior year.

306 *Organic Chemistry*

If desirable, work in organic chemistry may be substituted for a part of the quantitative analysis in courses 304 and 305.

CHEMICAL AND BIOLOGICAL COURSES

307 *Organic Chemistry*

This course consists of recitations from Remsen's *Organic Chemistry*, first half of the book.

Four hours a week in the Chemical and three hours in the Biological Course during the first term of the junior year.

308 *Organic Chemistry*

Remsen's *Organic Chemistry* is continued and completed in this course. Three hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

CHEMICAL COURSE

The following courses may be taken by Seniors in the General Science Course who have had three years of chemistry in college.

309 *Organic Chemistry*

This is a laboratory course dealing with the preparation of carbon compounds. The student performs those operations whose significance he has learned in the class-room in the preceding courses.

Eight hours a week during the first term of the senior year.

310 *Organic Chemistry and Thesis*

This is a continuation of the preceding course.

After finishing experimental organic chemistry the student in the Chemical Course takes up work for his thesis, the subject being chosen by him, but requiring the approval of the instructor.

Eight hours a week during the second term of the senior year.

BIOLOGICAL COURSE

311 *Organic Chemistry, Laboratory*

Preparation of carbon compounds, illustrating the studies of the class-room.

Three hours a week during the senior year.

DESCRIPTION OF STUDIES

CHEMICAL COURSE

312 *Stoichiometry*

This course consists of recitations from Thorp and Tate's *Chemical Problems*.

Three hours a week during the first term of the junior year.

313 *Physical Chemistry*

This subject, to be defined as the application of physical methods to chemical questions, has developed in a remarkable way and now forms the fundamental part of chemical science. The subject is taught by recitations and laboratory practice in class hours. The recitations are from Speyers' *Text-book of Physical Chemistry*; the experiments deal with molecular weight determinations.

Five hours a week during the first term of the senior year and three hours during the second term.

314 *Journal Chemistry*

This course consists in reading reports from chemical journals, the student in this way finding out how investigations are made, and being compelled to review constantly his earlier knowledge of chemistry in order to follow the writers of the articles.

One hour a week during the senior year.

315 *Industrial Chemistry*

This is a recitation course concerning the important technical processes, including metallurgy. Visits are made by the class to various factories where the actual operations may be observed.

Four hours a week during the first term of the senior year and three hours during the second.

GEOLOGY AND MINERALOGY

Professor LEWIS: courses 331—339.

Professor NELSON: course 340.

Doctor KÜMMEL: course 333.

GENERAL SCIENCE COURSE, ELECTIVE

AGRICULTURAL AND BIOLOGICAL COURSES

SHORT COURSE IN CERAMICS

331 *Elementary Geology*

An introductory text-book course in general geology. Emphasis is placed on those phenomena that influence most the conditions of life, such as the formation of soils; weathering, erosion, and deposition, and the resultant topographic forms; the origin of ores, etc. An outline of historical geology is studied with special reference to North America. (Norton's *Elements of Geology*).

Three hours a week during the second term of the sophomore (or second) year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

GENERAL SCIENCE COURSE, ELECTIVE

332 *General Geology*

A recitation course with supplementary lectures designed to furnish a general knowledge of the subject with some insight into the methods of geologic investigation. Particular attention is given to dynamic and structural geology and physiography. The development of the North American continent and the leading facts in organic evolution are studied in historical geology. (Scott's *Introduction to Geology*, second edition).

Three hours a week during the first term of the junior year.

CHEMICAL AND CERAMICS COURSES

333 *General Geology*

A recitation and lecture course similar in scope to the preceding course, supplemented by a series of five lectures by the State Geologist on the geology and mineral resources of New Jersey.

Three hours a week during the second term of the senior year.

CIVIL ENGINEERING COURSE

334 *Applied Geology*

A general discussion of dynamic, structural, and physiographic geology, with special reference to their bearing upon engineering practice. The course includes a practical laboratory study of the common rocks, particularly those that are adapted to architectural and engineering purposes, and exercises in the use of topographic and geologic maps. (Geikie's *Structural and Field Geology*).

Three hours a week during the second term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

335 *Physical Geology and Petrology*

The course includes a comprehensive discussion of the topics of physical geology, with practical work in the structural collections and field exercises in the vicinity of New Brunswick. In petrology the various families of rocks are studied, their distribution, occurrence, and geologic importance; also the characters of the rock-forming minerals, with practice in the use of the petrographic microscope. (Chamberlin and Salisbury's *Geology*, vol. I; Kemp's *Handbook of Rocks*; Luquer's *Minerals in Rock Sections*).

Four hours a week during the first term of the senior year.

336 *Historical Geology*

A general survey of stratigraphic and historical geology, with study of characteristic fossils. The preparation of a geological map and report of some definite area will be required. This course, together with course 335, furnishes a substantial basis for further specialization in geology or for mining engineering. (Chamberlin and Salisbury's *Geology*, vols. II and III).

Four hours a week during the second term of the senior year.

DESCRIPTION OF STUDIES

337 *Historical and Economic Geology*

A condensed course in historical geology, followed by a study of the chief geologic products of value, including metallic and non-metallic minerals and building stones. The course deals particularly with the economic deposits of North America, with briefer reference to those of other countries for comparison. (Ries's *Economic Geology of the United States*).

This course is offered as an alternative to course 336, at the option of the professor, and is designed particularly for students specializing in inorganic chemistry or preparing for a course in metallurgy.

Four hours a week during the second term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

CHEMICAL, CERAMICS, AND BIOLOGICAL COURSES

338 *Mineralogy*

A laboratory and lecture course intended to furnish an adequate conception of the scope of the science, together with a practical acquaintance with the common minerals. It includes an outline of crystallography, physical and chemical properties of minerals, determination of unknown specimens, and practice in the recognition of the more important minerals by sight. (Moses and Parsons's *Mineralogy, Crystallography, and Blowpipe Analysis*).

Five hours a week during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE

CHEMICAL AND CERAMICS COURSES

339 *Crystallography*

A study of the laws of crystallization, with laboratory exercises in the important crystallographic groups by means of models and natural crystals, and by practice in crystal-drawing in the simpler modes of projection. (Moses's *Characters of Crystals*).

Three hours a week during the second term of the junior year.

BIOLOGICAL COURSE

340 *Invertebrate Paleontology*

In this course the geology and zoölogy of the sophomore year are supplemented by a systematic study of invertebrate fossils from the double viewpoint of geological succession and of phylogeny. The collections in the Geological Museum afford excellent illustrations for this course. See Zoölogy 404.

Once a week (partly two-hour laboratory sessions and partly one-hour recitations) during the second term of the junior year.

CLAY-WORKING AND CERAMICS

Associate Professor PARMELEE

CERAMICS COURSE

SHORT COURSE IN CERAMICS

351 *Origin and Nature of Clays*

This is a study of the history of the formation of clays, their physical and chemical characteristics, the nature of the mineral impurities and of other impurities present, with their effect upon the usefulness of the clay. (Ries' *Clays, Properties and Uses*).

Two hours a week during the first term and three hours during the second, in the junior year of the four-year course and in the first year of the Short Course.

352 *Ceramic Calculations*

This is a course of study in the mathematical methods of solution of problems involved in the preparation of bodies and glazes, as well as problems in drying and firing.

Four hours a week during the second term of the junior year in the four-year course and of the first year in the Short Course.

353 *Winning and Preparation of Clays, and Manufacture of Bodies*

This is a study of the winning and the preparation of clays for use, with the description of the machinery employed, and the methods of manufacture of the various types of wares; also following this is a study of the composition and constitution of the various wares. Laboratory work of ten hours a week is required of the student in the four-year course and twelve hours a week of the student in the two-year course, during which hours the student demonstrates experimentally the principles already studied.

Sixteen hours a week during the first term of the senior year in the four-year course, and eighteen hours during the first term of the second year in the Short Course.

354 *Glazes*

This is a study of the theory of the construction of glazes, the raw materials used, the various types of glazes, their preparation, application, and faults. Laboratory work of ten hours a week for the four-year student and twelve hours a week for the two-year student accompanies this lecture course.

Thirteen hours a week during the second term of the senior year in the four-year course, and fifteen hours during the second term of the second year in the Short Course.

355 *Driers and Kilns*

This is a study of the different types of driers; combined with this is a study of fuels, their combustion, the various types of kilns and their construction.

Three hours a week during the second term of the senior year in the four-year course and of the second year in the Short Course.

DESCRIPTION OF STUDIES

AGRICULTURE

Professor VOORHEES: courses 367 and 369

Professor HALSTED: course 366

Associate Professor LIPMAN: course 364 and 365

Descriptions of other courses in agriculture will be found under Short Courses in Agriculture, course 461 sqq.

AGRICULTURAL COURSE

361 *Soil Physics*

The course in soil physics consists of lectures on the origin, formation and mechanical composition of soils, and their relation to heat and moisture. The various physical properties of soils, such as water-holding, capillary and hygroscopic power, specific gravity, behavior towards gases and stains, etc., are considered from the standpoint of crop-production. Areas characteristic of certain soil-types in the United States are discussed in their relation to crop-specialization. Systems of drainage and irrigation are also dealt with in so far as they affect the character of soils and their fertility.

Three hours a week during the first term of the sophomore year.

362 *Soil Physics*

This is a laboratory course supplementary to the preceding course. The students are taught to make mechanical analyses of soils by means of sieves and elutriating apparatus. They are also carried through a series of exercises intended to demonstrate the different physical properties of soils and their modification by various methods of soil-treatment.

Five hours a week during the first term of the sophomore year.

363 *Farm Mechanics*

This is a laboratory course dealing with the construction and use of agricultural implements and machinery.

Five hours a week during the second term of the sophomore year.

364 *Soil Fertility and Plant Nutrition*

This course consists of lectures and recitations on the chemical composition of soils, their chemical properties as affecting the supply of available plant-food, and their relation to manures, fertilizers, and crop residues. The maintenance of soil fertility is considered under various conditions of cropping, crop-rotation, green manuring, and fertilization. The composition of soils is also studied in its relation to the composition and quality of the crops grown upon them. This course deals also with the absorption and assimilation of plant-food, the chemistry of plant substances, the changes in chemical composition effected by selection and breeding, and the function of different chemical elements in plant production.

Three hours a week during the first term of the junior year.

365 *Soil Fertility*

This course consists of laboratory exercises dealing with the subject of soil fertility from the bacteriological standpoint. The students are taught to prepare special media for the study of soil bacteria, to isolate them in pure culture, and to determine the chemical changes produced by them in culture solutions or in soils. It is to be taken in conjunction with lecture course 364.

Four hours a week during the last twelve weeks of the first term of the junior year.

366 *Horticulture*

The methods of plant propagation are studied in detail, including the sowing of seeds, transplanting of seedlings, making and growing of cuttings, graftings, etc. Nursery and orchard operations are dwelt upon, and special attention is given to the development of a fruit plantation, from the selection of a site, choosing of varieties, planting, pruning, tillage and the treatment of insect and fungous enemies, to the harvesting, storage, and marketing of the crops. See Botany 413.

Nine hours a week during the second term of the junior year.

367 *Agronomy*

This course consists of lectures and recitations on the history and development of scientific agriculture, on the composition, value, and methods of use of natural and artificial manures; field crops in their relation to tillage, rotation, and breeding; special and mixed farming, and extensive and intensive practice; characteristics of forage crops adapted to soiling, silage, hay and pasture; methods of seeding, harvesting and using forage crops, their relation to fertility and their influence on the character and quality of dairy products.

Four hours a week during the first term of the senior year.

368 *Agronomy*

This is a laboratory course on the selection, testing and the preparing of seed for planting; the judging of varieties of corn, wheat, oats, and other grains, and the milling properties of wheat as affected by soil and climate.

Five hours a week during the first term of the senior year.

369 *Animal Husbandry*

Lectures and recitations on the origin and development of breeds of live-stock; the principles involved in breeding; the relations of plant and animal life; the function and physiological value of nutrients; the composition and use of concentrated feeds and the preparation of rations.

Four hours a week during the second term of the senior year.

370 *Milk-testing*

Laboratory instruction in the use of the Babcock test for milk, skim-milk, cream, and cheese; in the acidity of milk and the use of the lactometer; the detection of adulterations; the testing of individual cows.

Five hours a week during the second term of the senior year.

DESCRIPTION OF STUDIES

BIOLOGY

Professor NELSON: courses 382—387

Associate Professor LIPMAN: course 381

Mr. NELSON: course 384

GENERAL SCIENCE COURSE, ELECTIVE

AGRICULTURAL AND BIOLOGICAL COURSES

381 *General Bacteriology*

Part 1: lectures on the development of bacteriology; bacteria, their activities and products. Part 2: lectures and recitations on soil bacteria and their relation to soil-fertility and crop-production. Part 3: lectures and recitations on the micro-organisms in milk and other food products.

Two hours a week during the first term of the junior year.

382 *Bacteriological Laboratory*

This course begins with general technique, the preparation of media; rearing of cultures; mounting, staining, and methods of studying microscopical preparations. After this, special studies are made in the separation and diagnosis of bacteria in milk, water, sewage, etc.

Three hours a week during the first term of the junior year, except in the Agricultural Course; in the latter, four hours a week during the first six weeks of the term.

AGRICULTURAL AND BIOLOGICAL COURSES

383 *Animal Diseases and Veterinary Science*

In this course the subjects of parasitology, zymotic diseases, veterinary diagnosis, and therapeutics are considered, mainly by lectures. The laboratory work continues the study of pathogenic bacteria of course 382 and is followed by a comparison of normal and pathological histology, including the changes produced in tissues and organs by disease. The gross and minute anatomy of the domestic animals is studied during half of the time and is identical with half of the laboratory work of course 405.

Six hours a week in the Agricultural Course and four hours in the Biological Course, during the first term of the senior year.

GENERAL SCIENCE COURSE, ELECTIVE

AGRICULTURAL AND BIOLOGICAL COURSES

384 *Embryology*

In this course the development of the bird is made the basis of comparison with corresponding stages in the developing amphioxus, fish, frog, rabbit, calf and man. Taught by lectures, supplemented by laboratory study (with drawings) of the chick in successive stages of development during the first four days of incubation, in entire views and all the typical sections, under appropriate magnification.

Seven hours a week in the General Science Course and six hours in the technical courses, during the first half of the first term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

385 *Ecology and Heredity*

This course includes philosophical biology, the history of the biological sciences, theories of evolution (Lamarck, Darwin, Weismann, etc.) and principles of breeding. Lectures.

Two hours a week during the second half of the first term of the senior year.

386 *Biological Technique*

Includes laboratory exercises in the preparation of histological material; imbedding, sectioning, staining, and mounting entire sections of embryos, tissues, and organs.

Five hours a week in the General Science Course and four hours in the technical courses, during the second half of the first term of the senior year.

BIOLOGICAL COURSE

387 *Physiology and Hygiene*

This course includes a consideration of digestion, absorption, circulation, respiration, assimilation, excretion, and reproduction. Lectures are given on personal, domestic, and municipal hygiene, supplemented by laboratory work in physiological chemistry, physiological physics, a study of blood, and simple physiological *praxis* not involving vivisection. A microscopical study of water supplies completes the term.

Seven hours a week during the second term of the senior year.

ZOOLOGY

Professor NELSON: courses 401—405

Mr. NELSON: courses 402, 403, and 405

GENERAL SCIENCE COURSE, ELECTIVE

BIOLOGICAL COURSE

401 *Comparative Physiology and Morphology*

This course is devoted to a consideration of the anatomy and physiology (human and comparative) of the nervous, sensory and locomotor systems of organs, as a foundation for the later study of psychology. It accompanies course 402. (Le Conte's *Comparative Physiology and Morphology of Animals*).

Two hours a week during the first term of the sophomore year.

402 *General Zoölogy*

This is an introductory and elementary course presenting the main facts of systematic zoölogy as a foundation for the later study of geology. It is fully illustrated by demonstrations from specimens, models, and charts. The course is open to election only in the General Science Course and must be taken in connection with courses 401, 211, and 331. (Linville and Kelly's *General Zoölogy*).

Three hours a week during the first term of the sophomore year.

DESCRIPTION OF STUDIES

GENERAL SCIENCE COURSE, ELECTIVE AGRICULTURAL AND BIOLOGICAL COURSES

403 *Zoölogy and Morphology of Invertebrates*

In this course selected types of invertebrates are studied with thoroughness, beginning with the lowest and working upwards towards the insects. Particular attention is devoted to the following groups: Protozoa, Sponges, Hydromedusae, Annelides, Bivalves, and Crustacea. This course includes laboratory exercises in the use of the compound microscope, followed by a study of various protozoa, and later by the dissection of higher types of invertebrates such as sponges, polyps, earthworm, starfish, clam, oyster, lobster, etc. The student is required to make careful drawings of the dissections and microscopical views.

Five hours a week in the General Science and Biological Courses and six hours in the Agricultural Course, during the first term of the junior year.

BIOLOGICAL COURSE

404 *Invertebrate Palaeontology*

In this course the geology and zoölogy of the sophomore year are supplemented by a systematic study of invertebrate fossils from the double viewpoint of geological succession and of phylogeny. The collections in the Geological Museum afford excellent illustrations for this course. See Geology 340.

Once a week (partly two-hour laboratory sessions and partly one-hour recitations), during the second term of the junior year.

GENERAL SCIENCE COURSE, ELECTIVE BIOLOGICAL COURSE

405 *Zoölogy and Comparative Anatomy of Vertebrates*

This course includes two series of exercises, each conducted partly in the lecture-room and partly in the laboratory: the first series emphasizes the general zoölogy and morphology of vertebrates (including fossils) with special attention to the lower forms; the second emphasizes comparative anatomy, osteology, and histology with special study of the domestic animals. Students electing the course in zoölogy and botany take the whole of the first series and a part of the second. Students in the Biological Course take the whole of both series. (Parker and Haswell's *Manual of Zoölogy*, Pratt's *Vertebrate Zoölogy*, Parker's *Morphology of the Skull*, Flower's *Osteology of the Mammalia*, Davison's *Mammalian Anatomy*, Holmes' *Biology of the Frog*, etc.)

Seven hours a week in the General Science Course and eight hours in the Biological Course, during the first term of the senior year.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

BOTANY AND HORTICULTURE

Professor HALSTED

GENERAL SCIENCE COURSE, ELECTIVE AGRICULTURAL AND BIOLOGICAL COURSES

411 *Plant Anatomy*

The students familiarize themselves with the methods of plant growth, each point considered being, as far as possible, illustrated by living specimens. They examine with the compound microscope the minute structure of leaves, stems, roots, flowers, and fruits of various type-plants. In the laboratory the work is elaborated by means of charts and museum specimens and a set of Auzoux models. Some of the laboratory exercises are conducted in the field, where work upon the fresh material, thus collected, brings to the students a working knowledge of systematic botany.

Five hours a week in the General Science Course and six hours in the technical courses, during the second term of the junior year.

412 *Plant Physiology and Pathology*

The work begins with the seedling, studied under varying conditions, so that the functions of root, stem, and leaf may be demonstrated by the use of dark chambers, cold and warm rooms, etc., the plant activities being recorded with instruments for that purpose. The effects of various poisons are investigated. While not excluding field work in ecology or the further pursuit of systematic botany, special attention is given to a study of the lower forms of plants and particularly the various kinds of parasitic fungi, including those rusts, mildews, molds, and blights that are most destructive to the crops of the farm, orchard, and garden.

Seven hours a week in the General Science Course and six hours in the technical courses, during the second term of the senior year.

AGRICULTURAL COURSE

413 *Horticulture*

The methods of plant propagation are studied in detail, including the sowing of seeds, transplanting of seedlings, making and growing of cuttings, grafting, etc. Nursery and orchard operations are dwelt upon, and special attention is given to the development of a fruit plantation, from the selection of a site, choosing of varieties, planting, pruning, tillage, and the treatment of insect and fungous enemies, to the harvesting, storage, and marketing of the crops.

Nine hours a week during the second term of the junior year.

DESCRIPTION OF STUDIES

ENTOMOLOGY

Professor SMITH

GENERAL SCIENCE COURSE, ELECTIVE
AGRICULTURAL AND BIOLOGICAL COURSES

421 *Anatomy and Physiology of Insects*

This course covers the general structure of insects with special reference to those characters that bear upon their relations to plants and other animals, and embraces laboratory work in the dissection of insects, supplemented by lectures and quizzes. The course takes up the classification of insects in general, their history and development. The lower orders are taken up and studied with practical work in identifying and classifying insects. The book work is supplemented by lectures. (Smith's *Economic Entomology*).

Five hours a week in the General Science Course and six hours in the technical courses, during the second term of the junior year.

422 *Systematic and Economic Entomology*

The work of course 421 is continued, and the higher orders are considered, ending with the social insects. Lectures are given on the use of insecticides. Lectures and recitations alternate to bring out the practical bearing of the studies. Laboratory work in classification is continued and, whenever time and weather permit, field work is added during the last weeks of the term. (Smith's *Economic Entomology*).

Seven hours a week in the General Science Course and six hours in the technical courses, during the second term of the senior year.

MILITARY SCIENCE AND TACTICS

Captain PARROTT

The object of instruction in this department is not only to comply with the requirements of the laws of Congress for the State Colleges organized under the act of 2d July, 1862, but also to improve the health and physique of students, and to give that elementary military knowledge which every citizen should possess that he may render intelligent and effective aid to his country or State in case of wars or riots.

Practical clay-workers in the Short Course in Clay-working and Ceramics are not required to take any of the following courses:

ALL FOUR-YEAR COURSES
SHORT COURSE IN CERAMICS

431 *Military Drill*

This is required of all students in the four-year courses and in the Short Course in Clay-working and Ceramics, except practical clay-workers in the latter course, and such students as may be excused by reason of conscientious scruples or physical disability.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

The student, on entering college, is drilled in the school of the soldier, and is advanced, successively, to the schools of the company and battalion in close and extended order.

Considerable attention is given to military signaling and to target practice, the College being supplied with U. S. magazine rifles, model 1898, and a liberal supply of rifle ammunition. Students are instructed also in revolver firing.

Twice a week throughout the entire course.

432 *Field Regulations and Guard Duty*

The instruction covers the schools of the soldier, squad, company, and battalion; also the care of the rifle, position and aiming drill, gallery and target practice, manual of guard duty, lectures on first aid to the wounded, and signal practice.

Two hours a week during the first term of the junior year in the four-year courses and of the second year in the Short Course.

433 *Field Service Regulations*

This is a course of instruction in the organization of troops, reconnaissance, guards and outposts, combat, transportation, etc.

One hour a week during the second term of the junior year in the four-year courses and of the second year in the Short Course.

PHYSICAL TRAINING

Mr. DODGE

Opportunities for physical training are afforded to all students by the Ballantine Gymnasium and Neilson Field, which are elsewhere described.

At the beginning of his freshman year each student is given a physical examination, and a complete record is made of his physical condition. This examination is repeated from time to time and thus affords valuable information concerning the growth and development of the individual.

Students are required, before enrollment by the manager of an athletic team or organization, or before entering their names for match contests, to secure from the Instructor in Physical Training a certificate, good for the current college year, stating that the candidate is physically fit for such contests.

OPTIONAL FOR ALL

General courses in physical training are offered to all students at the College. Classes are formed to suit the general convenience, and a progressive course of instruction is followed. Swimming is generally taught during the first term. During the second term a class is formed from the Juniors and Seniors, for instruction in fencing with foils and singlesticks.

DESCRIPTION OF STUDIES

THESES

ALL FOUR-YEAR COURSES

451 *Graduation Theses*

At the end of the second term each member of the graduating classes in the courses which lead to the degree of Bachelor of Science is required to write a thesis on some subject approved by the professor or professors in charge of his elective course or courses. This thesis must be acceptable to the professor under whose direction it has been prepared, and the author is required to submit a copy suitable in all respects for binding and for permanent preservation in the College Library.

SHORT COURSES IN AGRICULTURE

EDWARD B. VOORHEES: fertilizers, feeds and farm management.

JACOB G. LIPMAN: soil bacteria.

GEORGE M. LUMMIS: soil chemistry and physics.

F. C. MINKLER: animal husbandry and farm crops.

GEORGE A. BILLINGS: dairy husbandry and butter-making.

PETER R. LETSON, JR., Assistant in Milk-testing.

M. A. BLAKE: fruit-growing.

R. L. WATTS: market gardening.

J. B. SMITH: lectures on economic entomology.

E. L. DICKERSON: entomology, laboratory practice.

CLARA M. CHANDLER, *Secretary*.

Instruction is given both by lectures and by practice, the practice occupying about one-half of the student's time. There will be each week twenty lectures or recitation periods, of one hour each, mornings, and at least as many hours devoted to afternoon work, in stock-judging and in the soil, milk, horticultural, and entomological laboratories. There will also be Saturday morning lectures by specialists.

There are three courses, in general agriculture, in dairy-farming, and in fruit-growing and market gardening, respectively. All of these begin 3d December, 1907, and close 6th March, 1908. Correspondence may be addressed to Professor Edward B. Voorhees, New Jersey State College, New Brunswick, N. J.

GENERAL SUBJECTS

The following are common to all three courses:

461 *Soils*

Origin, formation, and distribution of soils; their chemical, physical, and bacteriological properties as related to fertility. Classification of soils and their adaptation for specific lines of farming.

462 *Manures and Fertilizers*

The composition and value of farm manures; relative value of various kinds of manures; methods of saving and using farm manures; the sources of supply of fertilizer materials; home mixtures, manufactured fertilizers, lime and its uses; green-manure crops, cover crops, and methods of using them.

GENERAL AGRICULTURE

463 *Farm Crops*

Characteristics of different kinds of farm crops. Preparation of soil; seeding, rotation, cultivation, harvesting, and curing of crops. The varieties of corn; corn-judging; the selection of seed corn.

464 *Use of feeds*

The composition and use of commercial feeds. The exchange of home-grown for more concentrated feeds. The preparation of rations for different classes of farm animals. The silo and silage. Methods of feeding.

465 *Breeds of Animals, Care and Management*

The principles of breeding; methods of breeding; grading; in-breeding; cross-breeding; pure-breeding; line-breeding. Special problems connected with the development of pure breeds, and their influence upon common stock. Practical work in barns, in judging cattle, horses, sheep and swine. Score cards will be used to develop the student's power of observation.

466 *Farm Buildings and Equipment*

Types and methods of construction of various farm buildings. Sanitation, ventilation, and water supply of farm buildings. Farm machinery.

467 *Injurious Insects*

The general structures, life histories, and habits of insects; various methods of treating injurious forms. The principal injurious types together with methods of treatment and prevention. Microscopic study of forms and structures of economic importance.

DAIRY FARMING

468 *Forage Crops*

The growth and use of forage crops for the dairy; soiling systems, rotation of forage crops. Silo and silo-building. Soiling in relation to soil improvement; catch crops; home-grown protein feeds. Summer silage—alfalfa and cow peas. Soiling versus pasturage. Pastures and their treatment.

469 *Use of Feeds*

The composition and use of commercial feeds. The exchange of home-grown for more concentrated feeds. The preparation of rations for different classes of farm animals. The silo and silage. Methods of feeding.

470 *Breeds of Dairy Animals*

The principles of breeding; methods of breeding. Testing for advanced registry; relative importance of different dairy breeds for different purposes. The selection of the dairy cow. Dairy form and its influence. The raising of calves. Diseases of cows: tuberculosis, milk-fever, garget, abortion.

DESCRIPTION OF STUDIES

471 *Milk and its Products*

Lectures on the formation and secretion of milk. Composition of milk. Changes in milk. Bacteria in milk. Influence of bacteria on the flavor of milk and butter. Weighing and sampling milk and cream, separating milk, pasteurizing milk and cream, ripening cream with and without "starters," butter-making, churning and working butter, packing and printing butter for market, and testing milk and cream. The handling of milk for the retail trade, cooling, pasteurizing and bottling. The value and use of skim-milk.

472 *Milk-testing*

The Babcock test for milk, skim-milk, cream, and cheese. The acidity of milk; the use of the lactometer; the detection of adulterations; the testing of individual cows.

FRUIT-GROWING AND MARKET GARDENING

473 *Setting and Handling of Orchards*

Propagation of fruit trees and berry plants by grafting, budding, layering and cutting. The selection of soils for fruits; significance of slopes and elevations for commercial orchards; water and atmospheric drainage. Laying out fruit and berry plantations; selection of varieties of fruits and berries. Tillage of soil for orchards and berry patches. Relation of mulching to soil management; the conservation of moisture. The ripening of wood in the autumn.

474 *Growing and Marketing Fruits*

Treatment and care of fruit trees, at the time of setting and throughout their subsequent development. Season for pruning. Relation of pruning to fruitfulness and to wood growth. Influence of climatological conditions. Fungous diseases and their treatment, rots, rusts, blights, smuts. Preparation of fruit for market. Fruit and berry packages; marketing; methods of coöperation in selling crops.

475 *Vegetable-growing*

Planting, cultivation, and management of market-garden and special crops. Construction and methods of management of hot-houses and cold-frames; transplanting. Planting of home grounds; laying out of grounds. Packing and marketing of crops.

476 *Spraying for Insects and Diseases*

Machinery for spraying; making up sprays and poisons for various purposes. Methods and time of application.

477 *Injurious Insects*

The general structures, life histories, and habits of insects; various methods of treating injurious forms. The principal injurious types together with methods of treatment and prevention. Microscopic study of forms and structures of economic importance.

478 *Utilization of Waste*

Animals for the fruit-grower and market gardener. Utilization of waste fruit and vegetables.

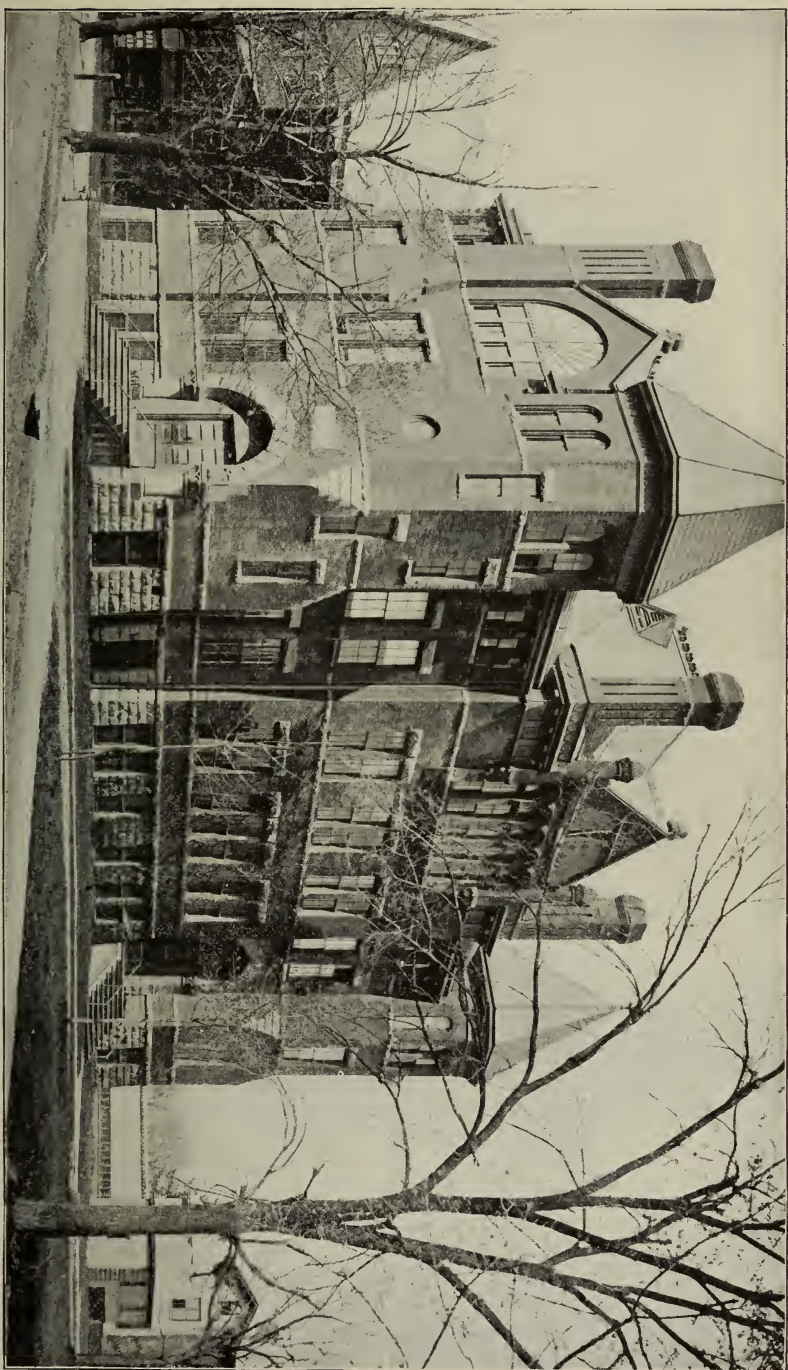
AGRICULTURAL EXPERIMENT STATION

By an act of Congress of 2d March, 1887, a law was passed entitled "An act to establish agricultural experiment stations in connection with the colleges established in the several States under the provision of an act approved 2d July, 1862, and of the acts supplementary thereto." This act was commonly known as the "Hatch Act," from the active interest taken in its passage by Honorable William H. Hatch, M.C., of Missouri. It authorizes the appropriation of \$15,000 annually for the support of agricultural experiment stations in connection with the colleges which were established in the several States, "for the benefit of agriculture and the mechanic arts," by the act of Congress of 2d July, 1862.

By an act of Congress, 16th March, 1906, a law was passed entitled "An act to provide for an increased annual appropriation for agricultural experiment stations, and regulating the expenditure thereof." This act is known as the "Adams Act." It authorized the appropriation of \$5000 for the year ending 1st July, 1906, with a yearly increase thereafter of \$2000 up to a maximum of \$15,000 per year.

The Legislature of New Jersey, by its acts of 16th March, 1887, 5th March, 1888, and 3d May, 1906, designated the Trustees of Rutgers College "as the parties to whom all moneys appropriated by Congress under said acts of Congress or supplements thereto shall be paid for the purposes mentioned in said acts of Congress." The department of Rutgers College known as Rutgers Scientific School is, by law, the State College. The Agricultural Experiment Station is established in connection with it.

By the coöperation of the State Experiment Station, a large and well-fitted laboratory has been erected, and investigations are made of the insect enemies of plants, of the food products of our fresh and salt waters, and of their improvement, of the diseases of plants and the application of science to the growth of agricultural and



State Experiment Station

horticultural products, and of the food consumption and the value of the products of the best breeds of dairy cattle.

While the main business of such a station is in searching after new truths, and arranging them for practical and economic use, the proper location for it is in connection with an institution of learning. Almost all our investigators are teachers. The investigation and diffusion of knowledge necessarily go hand in hand; and the example of men devoted to the searching for useful truths is stimulating to those who are yet in their preparatory studies, and are aspiring to fill well their places in life.

It is from those now preparing that our future investigators must come, and it is important that they should have those who are now in the field of work directly before them. In this respect it is believed that the location of the Station at the College is most salutary in its influence.

The foregoing report is respectfully submitted,

W. H. S. DEMAREST

President of the Board of Trustees

DEPARTMENT OF CLAY-WORKING AND CERAMICS

SIXTH ANNUAL REPORT

DIRECTOR, CULLEN W. PARMELEE, B.SC.

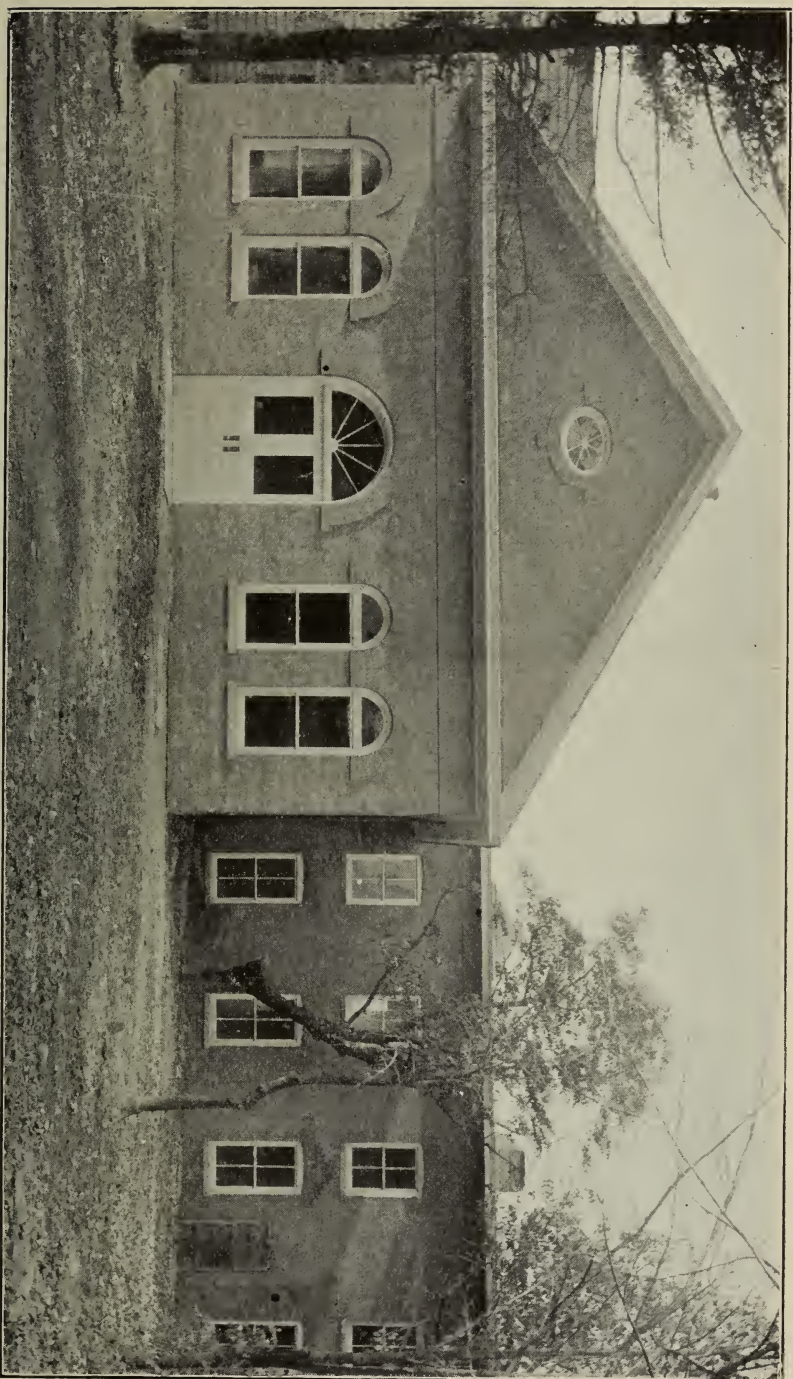
The work of the department was successfully conducted during the year ending 31st October, 1907. One student was graduated from the four years course and is now engaged as a ceramist.

Reports regarding the graduates of the course indicate that they are bringing credit to the school and that their labors are of material benefit to the industry.

The demand for young men with this training continues to far exceed the supply. This profession offers exceptional opportunities to young men. It is a new and not crowded field in an old and well established industry, and the young man's advancement is limited only by his personal qualifications and efforts.

Repeated evidences of the interest and the support of the clay-workers of this and other states have been shown by the expressions of good will and in the more tangible form of courtesies, such as gifts of materials, etc.

The new curriculum became operative with the opening of the college year in September. This provides a somewhat larger proportion of time for departmental work, better coördination of subjects and the introduction of some new ones. The new curriculum provides for instruction in the general principles of inorganic chemistry, including analytical chemistry as applied to the silicates. It provides theoretical and practical instruction in the principles involved in the production of the most important ceramic wares. To prepare the student to assume ultimately the responsibilities of factory management, instruction is given in the following engineering subjects: draughting, surveying, elements of



Building of the Department of Ceramics

mechanism, the elements of electrical engineering, and the elements of steam engineering. The course is designed with the purpose of making the student useful in any branch of the industry; in the mining of clays; in the operations of making the wares large or small; in the mechanical problems of generation, transmission, and application of power, and also in the chemical problems of the composition of wares. This also includes the principles of drying and firing. The course includes mineralogy, geology, mathematics, French, German, and English, all of which are necessary tools of the profession. Further, in order to broaden the student's training and better to prepare him for his duties as a citizen, history, political science, military science, and international law with the option of the substitution of ethics, are included.

The new curriculum is an improvement upon the old. A larger allotment of time for the Ceramic Laboratory is desirable, however, which later may be secured.

By the act of the last Legislature the annual appropriation for the support of the department has been increased to \$5,000. This increase has been much needed in order to maintain properly the department and to provide for the extension of its usefulness. Similar departments at other institutions are supported by equal or larger appropriations. By means of this increase it has become possible to install a steam-heating plant in the Ceramic Laboratory. Heretofore the department has been obliged to depend upon stoves, which were untidy, troublesome, and inadequate. Now the building is well heated to the comfort of the instructors and the students.

The increase has made it possible to engage an assistant to the Director. Mr. Herbert W. Moore, a graduate of the department, of the Class of 1904, has been appointed, and will assume his duties on 1st December. Since his graduation Mr. Moore has held a responsible position with a firm manufacturing chemical stoneware. He has therefore had the benefit of theoretical training and extended practical experience. The services of an assistant will be of great benefit to the department, permitting a considerable extension in the work of instruction and investigation of some of the numerous problems always to be found in the industry. It will also be possible for the staff to come more frequently into personal contact with the clay-working industries of the State and thereby become more conversant with their needs.

DEPARTMENT OF CLAY-WORKING AND CERAMICS

FINANCIAL STATEMENT

The Trustees of Rutgers College for the New Jersey State Agricultural College

IN ACCOUNT WITH THE DEPARTMENT OF CLAY-WORKING AND CERAMICS
APPROPRIATION, 1907

Dr.

To receipts from the Treasurer of the State of New Jersey as per appropriation, for the fiscal year ending 31st October, 1907, as per laws of New Jersey, 1906, chapter 284, section 85.....	\$2,500 00
By Salaries	\$1,500 00
Labor	102 79
Publications	81 00
Postage and stationery	13 42
Freight and express	28 37
Fuel, light, water, and power	239 46
Chemical supplies	12 58
Supplies of materials	6 80
Sundry supplies	36 84
Technical collection
Library	79 67
Tools, implements, and machinery	33 87
Furniture and fixtures	7 73
Scientific apparatus	59 15
Traveling expenses	228 74
Contingent expenses	7 00
Building and repairs	62 58
Total	\$2,500 00

We, the undersigned, duly appointed auditors of the corporation, do hereby certify that we have examined the books and accounts of the Department of Clay-working and Ceramics for the fiscal year of the State, ending 31st October, 1907, that we have found the same well kept and classified as above, and that the receipts for the year from the Treasurer of the State of New Jersey are shown to have been \$2500, and the corresponding disbursements \$2500, for all of which proper vouchers are on file, and have been by us examined and found correct, thus leaving no unexpended balance.

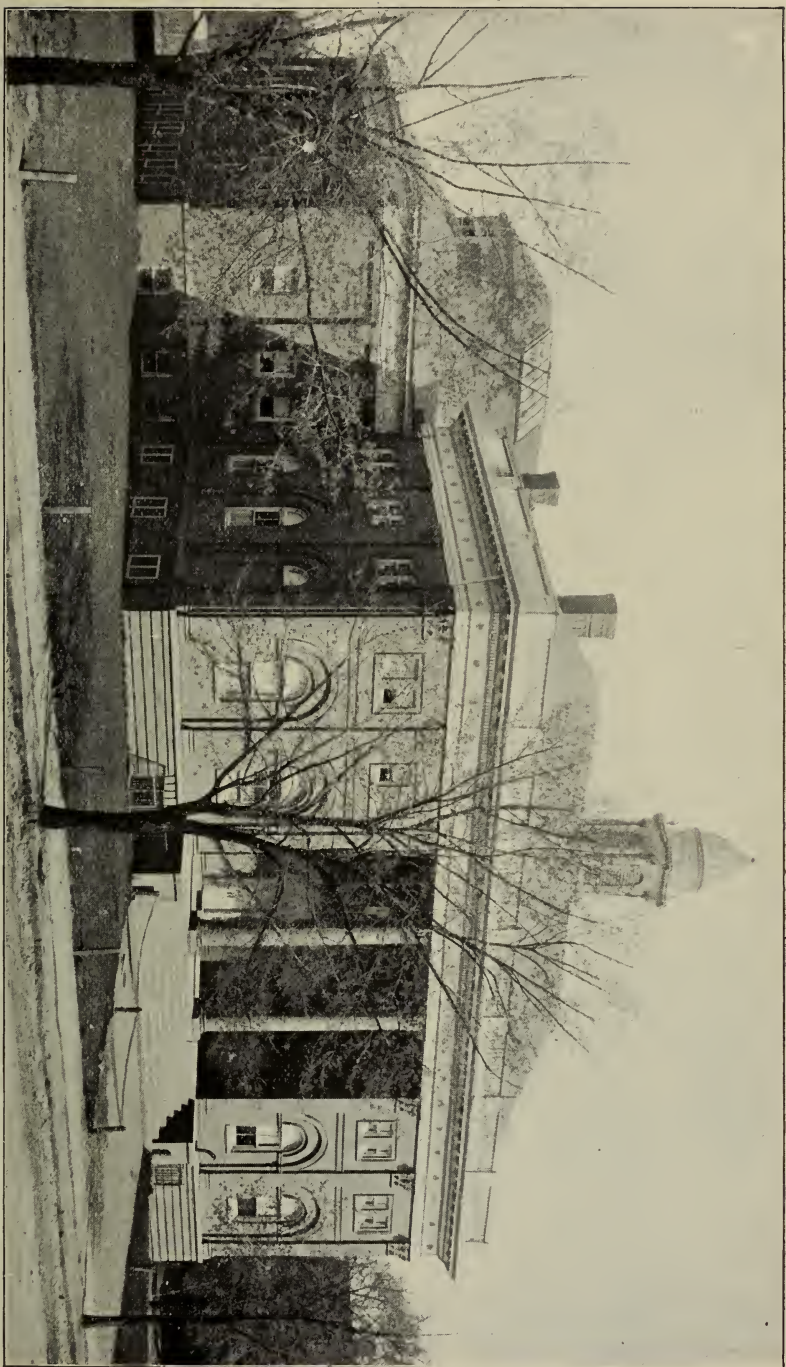
And we further certify that the expenditures have been solely for the purpose set forth in the laws of New Jersey, 1906, chapter 284, section 85.

W. H. S. DEMAREST

WM. H. LEUPP

Auditors

APPENDIX



The Robert F. Ballantine Gymnasium

DIPLOMAS AND CERTIFICATES

THE BACHELOR'S DEGREE

To members of the graduating class of the Bachelor of Science Course (which includes all four-year courses in Rutgers Scientific School), in full standing, the Trustees grant diplomas conferring the academic degree of Bachelor of Science. In the case of students who have pursued the technical science courses, the words, "in Civil Engineering," "in Mechanical Engineering," "in Electrical Engineering," "in Chemistry," "in Ceramics," "in Agriculture," or "in Biology," will be officially recorded to correspond with the course taken.

CERTIFICATES

To students who have satisfactorily pursued special courses of study, including the Short Course in Clay-working and Ceramics and the Short Courses in Agriculture, a certificate is granted stating the studies pursued and the attainments made.

THE MASTER'S DEGREE

The Faculty will recommend for the degree of Master of Science (M.Sc.) graduates of the Bachelor of Science Course, who being otherwise qualified—

1 Shall pursue for at least one year at Rutgers College a course of liberal and non-professional study, approved by the Faculty, and shall, beside the term examinations, pass a thorough examination on that course and present a thesis on some topic connected with it; or,

2 Not less than three years after taking the Bachelor's degree at Rutgers College, shall make application for the Master's degree, presenting at the same time a certificate of graduation from a theological seminary, a law school or a medical school, or of admission to the practice of law or medicine; or,

REPORT OF RUTGERS SCIENTIFIC SCHOOL

3 Shall present to the Faculty (at least one month before Commencement) satisfactory evidence by a thesis or by other proof, of successful labor in education or literature pursued during three consecutive years, and of advanced studies prosecuted; or,

4 Shall give satisfactory evidence of successful professional work actually done, and advanced professional studies prosecuted.

THE DOCTOR'S DEGREE

The degrees of Doctor of Philosophy (Ph.D.) and Doctor of Science (D.Sc.), respectively, will be conferred upon graduates of the College who shall have successfully pursued under the direction of the Faculty, ordinarily for a period of three years, and in any event for at least two years, prescribed courses of advanced study, which shall embrace one major subject and two minor subjects. Candidates must show on examination thorough knowledge of the subjects, and must by a thesis give evidence of capacity and success in original investigation. Further conditions will be made known on application.

CIVIL ENGINEER.

The degree of Civil Engineer (C.E.) is a professional one, and is, on application, conferred upon graduates of the College who have taken the degree of Bachelor of Science, and subsequently have passed three years in the practice and study of engineering, with results satisfactory to the Faculty.

The applicant is required to furnish a statement of the work upon which he has been engaged, and to present a thesis or discussion of some engineering work which he has done. The application and thesis must be presented to the Secretary of the Faculty at least one month before Commencement.

PRIZES

In every case where it is expected that a prize will be awarded for work done, it is distinctly announced that unless in the opinion of the examiners the work submitted is of such excellence as to merit a prize, or prizes, no prize will be awarded.

Whenever a prize requires both an essay and an examination, the essay must be handed in before the hour fixed for the examination.

All prizes are open equally to students in all courses leading to a degree. Each competitor for a prize must sign a written declaration that the essay or other work offered by him is his original and unaided work. The essays are to be written on a paper of a prescribed kind, and the successful essay is to be deposited in the College Library, before the writer is entitled to the prize.

GENERAL PRIZE

VAN VECHTEN PRIZE

The late A. V. W. Van Vechten, of New York City, founded in 1884, in honor of his mother, Mrs. Louisa Van Vechten, and his father, the Reverend Samuel Van Vechten, D.D., a prize of \$60, by the gift of \$1,000, the prize "to be given annually to that student of Rutgers College who shall be adjudged by the Faculty of the Theological Seminary of the Reformed Church in America, at New Brunswick, to have presented an article original with himself and the best submitted—the most conclusive and inspiring to strengthen faith in and love for Foreign Missions." The essays are limited to 3,000 words, and are to be presented on or before 1st May of each year.

Subject for 1908: *The Element of Foreign Missions in the Development of Japan.*

FRESHMAN PRIZES

TUNIS-QUICK PRIZE

This prize, established by P. Vanderbilt Spader, of New Brunswick, in memory of Tunis Quick, his maternal grandfather, is the income of \$300 at five per cent. and is to be presented to the member of the Freshman Class in any

REPORT OF RUTGERS SCIENTIFIC SCHOOL

course who shall pass the best written examination in spelling and English grammar under the direction of the Professor of English Literature, at as early a day as convenient in the second college term.

BARBOUR PRIZES IN SPEAKING

These prizes, two in number, of the value of \$15 and \$10, respectively, are offered by the Instructor in Elocution. The eight members of the Freshman Class who shall stand highest in elocution during the entire year may compete before a committee appointed by the Faculty.

SOPHOMORE PRIZES

MYRON W. SMITH MEMORIAL PRIZES

These prizes were founded by Lyndon A. Smith, M.D., of Newark, in name of his son, Adjutant Myron W. Smith, who was a graduate of the College in the Class of 1858, and who gave his life in the Civil War to the cause of his country. They consist of the interest on \$500 (twenty-five dollars), proportionately appropriated to two medals, one of gold and the other of silver, which are to be awarded respectively to the best and second-best speakers of the Sophomore Class. Only those students who have pursued in the College the regular studies from the beginning of the freshman year shall be allowed to contend for these prizes.

PETER SPADER PRIZES

These prizes, founded by P. Vanderbilt Spader in memory of his father, Peter Spader, are two in number, the income of \$400 and \$300 respectively, at five per cent, and are to be awarded to those members of the Sophomore Class who shall present the best essays on some subject in modern history, selected by the Professor of History, with the approval of the Faculty.

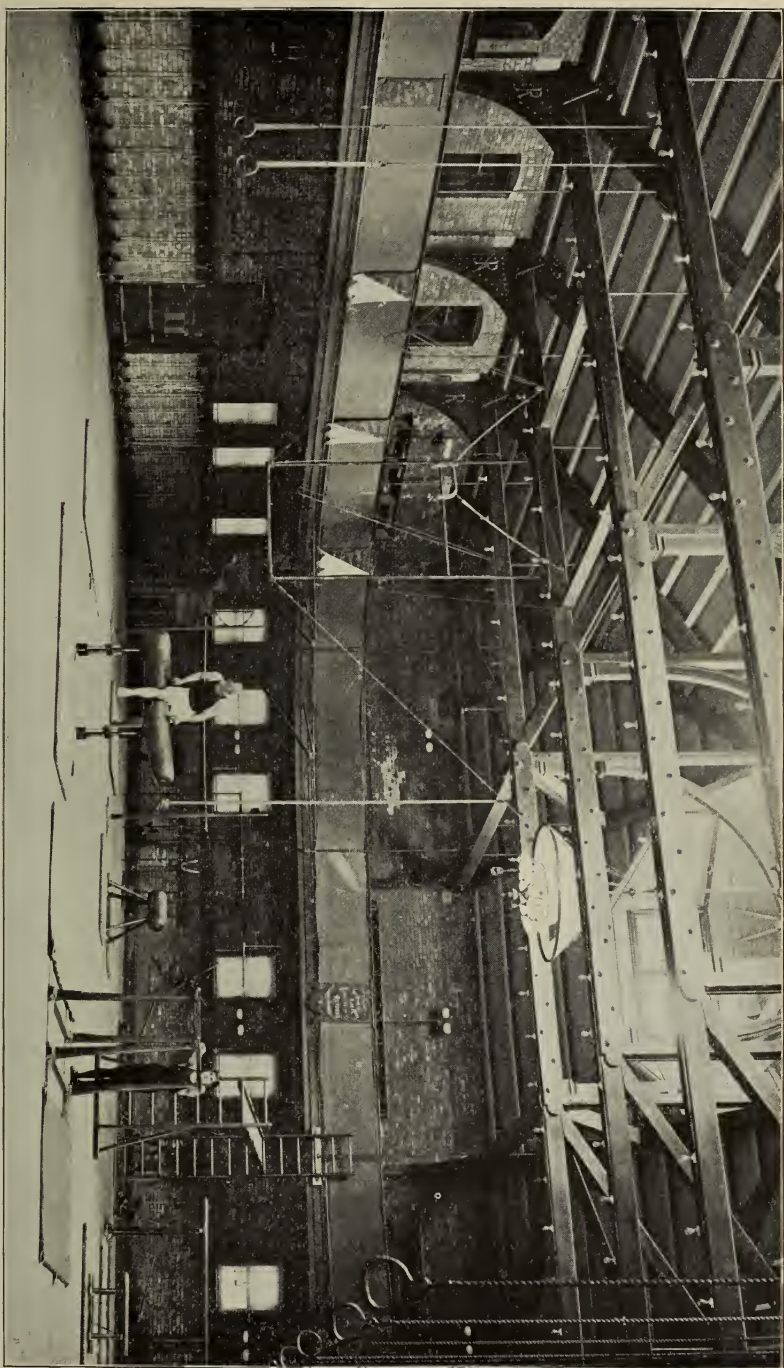
The subject is to be announced at the close of the freshman year, and the competing essays are to be handed in on or before the last Monday in May of the sophomore year.

Subject for 1908: *River Valleys in the United States and how they have affected History.*

JUNIOR PRIZE

UPSON JUNIOR-ORATOR PRIZE

A prize of \$25, the gift of Irving S. Upson, is awarded by a special committee at the time of the Junior Exhibition to that orator who shall be adjudged the best writer and speaker among the contestants.



Interior of Gymnasium

PRIZES

JUNIOR AND SENIOR PRIZES

JOHN PARKER WINNER MEMORIAL PRIZE

This prize consists of \$25, given by John Winner, Jr., and his wife, in memory of their son, John Parker Winner. It will be open to competition for students in any course leading to a degree, who are pursuing the study of mental philosophy, and will be bestowed on the one who shall pass the best examination on some work and write the best essay on some subject, assigned by the Professor of Philosophy. The essay shall consist of not less than 3,000 words.

For 1908:

- a Examination upon Gustave Le Bon's *The Psychology of Peoples*.
- b Subject for essay: *The Place of Ideas in the Evolution of Civilization*.

VAN DOREN PRIZE

This prize consists of \$20, the gift of the Reverend William H. Van Doren, D.D. It is open to competition for members of the Senior and Junior Classes. Subject for essay in 1908: *Bearing of Foreign Missions on International Relations*.

SENIOR PRIZES

SUYDAM PRIZE FOR COMPOSITION

This prize, the gift of James Suydam, is a gold medal of the value of \$25, or that sum in money, and is to be awarded to the member of the Senior Class who shall write the best English composition on a subject assigned to the class.

Subject for 1908: *The Message of the Mediaeval University to Modern Education*.

SUYDAM PRIZE IN NATURAL SCIENCE

This prize, the gift of James Suydam, is a gold medal of the value of \$25, or that sum in money, and is to be awarded to the member of the Senior Class who shall have made the highest attainments in natural science. The examination is upon all the subjects of natural science in the college course—astronomy, biology (including physiology and zoölogy), botany, chemistry, geology, and physics—and is conducted by the professors of those subjects. The questions and answers are required to be written.

BRADLEY MATHEMATICAL PRIZE.

This prize was established by the Honorable Joseph P. Bradley, LL.D., of the Class of 1836, and is maintained by his son, Charles Bradley, of the Class of 1876. It consists of a valuable mathematical work, which is to be bestowed on

REPORT OF RUTGERS SCIENTIFIC SCHOOL

the student of the Senior Class who shall present the best solution of a set of mathematical problems to be proposed to the class by the Professor of Mathematics before the close of the second term.

APPLETON MEMORIAL PRIZE

This prize was founded by a gift of \$500 from the Reverend Samuel E. Appleton, D.D., in the name of his mother, Mrs. Elizabeth Appleton. It consists of \$25, the interest of the above sum, and will be "given to the member of the Senior Class who shall pass the best examination in moral philosophy."

For 1908:

a Examination upon Lecky's *History of European Morals*.

b Subject for essay: *The Delineation of Conscience in the Plays of Shakespeare*.

BOWSER ENGINEERING-THESIS PRIZE

This prize was established by Professor Edward A. Bowser, LL.D., in 1875. It consists of mathematical or engineering works of the value of \$20, or that sum in money, and is awarded to that member of the engineering section of the Senior Class who shall present the best thesis upon some engineering subject at graduation.

BUSSING PRIZES

Mrs. Ann Van Nest Bussing, of New York City, has given to the College \$1,000, the income of which (fifty dollars per annum) is to be expended each year for books, which shall be selected by the President of the College, and given as follows: the first prize, of \$30, to that member of the Senior Class who shall prove himself to be the best extemporaneous speaker; the second prize, \$20, to the second-best extemporaneous speaker of the Senior Class.

CLASS OF 1876 POLITICAL PHILOSOPHY PRIZE

The Class of 1876 has given to the College one thousand dollars (\$1,000) as the foundation of a prize fund for the encouragement of the study of political philosophy. The income of this fund is to be awarded each year "to that member of the Senior Class (either Classical or Scientific) who shall be adjudged entitled to it, . . . on the basis of an original essay on some subject in political philosophy, assigned by the professor of that science in the College, and upon a competitive examination in a text-book also selected by him;" the committee of award to consist of "three competent persons selected by the Faculty of the College, at least one member of the committee to be a member of the Class of 1876 as long as any may be living."

For 1908:

a Examination upon Merriam's *History of American Political Theories*.

b Subject for essay: *The Question of Citizenship in the United States, historically considered*.

PRIZES

SCIENTIFIC PRIZE IN LOGIC

This prize consists of \$50 and is open only to students in full standing in the Bachelor of Science Course.

For 1908:

- a Examination upon Bradley's *Principles of Logic*, pp. 1-360.
- b Subject for essay: *Does Necessity Preclude Design?*

THEODORE FRELINGHUYSEN VAIL PRIZE

An annual prize of \$50, the gift of the late Theodore Frelinghuysen Vail, of New York City, is offered to that member of the graduating class who shall stand highest in average grade of scholarship in all the subjects pursued alike by students in the four-year courses throughout the senior year, provided he shall also rank high in each of the other prescribed and elective subjects pursued during the same year.

HONORS

HONORABLE MENTION

For the encouragement of additional or independent reading or study and original investigation, under the direction of the Faculty, honorable mention is made of students who give evidence of thoroughness in such work and pass a satisfactory examination. This work is done outside the course and without reference to a prize.

FRESHMAN AND SOPHOMORE HONORS

A list of Honor Men is published in the Register of the *College Catalogue* and the *Scientific School Report*. These consist of such members of the Freshman and Sophomore Classes of the preceding year as have stood in the first fourth of their respective classes in prescribed work, and have at the same time maintained a high rank in all the studies of their course.

JUNIOR EXHIBITION

Eight members of the Junior Class in the regular courses are chosen each year, on account of their abilities in composition and in elocution, who deliver original speeches at an exhibition held on the evening preceding Commencement. The selection is made by a committee of three persons appointed for that purpose by the Faculty. See Upson Junior-orator Prize, page 114.

HONORS

SPECIAL HONORS

Honors at graduation may be awarded to students pursuing the General Science Course in any elective pursued during the junior and senior years. To be eligible to receive such an honor a student must satisfy the following conditions:

- 1 He must rank highest of those pursuing the same elective.
- 2 He must have maintained a "high" average rank in the elective, and a "high" average rank in all the other studies of his course.
- 3 He must be recommended to receive the honor by the professor or professors who have instructed him in the elective.

Honors at graduation may be awarded to students pursuing the Technical Science Courses. To be eligible to receive such a technical science honor a student must satisfy the following conditions:

- 1 He must have maintained a "high" average rank in the technical elective subjects of the sophomore, junior, and senior years; and, also, in all the studies of the course.
- 2 He must be recommended to receive the honor by the professor or professors who have instructed him in the technical science subjects of his course.

GENERAL HONORS

General honors will be awarded at graduation on the basis of scholarship. At the end of the senior year, three classes of honor students will be recognized:

- 1 Highest honors will be awarded to students who shall have received an average of A, and no single grade lower than B; see page 137.
- 2 High honors will be awarded to students who shall have received an average of B or above, and no single grade lower than C.
- 3 Honors will be awarded to students who shall have received an average of B or above for the entire course.

COMMENCEMENT HONORS

The following regulations have been adopted by the Board of Trustees regarding the graduating exercises at Commencement:

Three scholarship honors shall be awarded to those members of the graduating class who shall stand first, second, and third, respectively, in general scholarship,

REPORT OF RUTGERS SCIENTIFIC SCHOOL

provided that in each individual case the student so standing shall have maintained a high rank in the special and elective studies of his course.

A failure on the part of any candidate to fulfill this condition will render the student standing next in grade of general scholarship eligible, subject to the same condition.

The three scholarship honors shall be designated as follows :

First honor—Scientific oration

Second honor

Third honor

Three other orations shall be awarded to members of the graduating class in either the Classical or the Scientific School in the order of their grades in composition and elocution during the junior and senior years, but only those students are eligible who shall stand in general scholarship in the first half of their class.

The first of these orations shall be known as the Rhetorical Honor and may be awarded to a student who has also received one of the scholarship honors, in which case, however, he shall deliver but one oration at Commencement ; the other two shall be awarded to students who have not received any of the scholarship honors.

In 1911 and thereafter, for speakers at Commencement the Faculty will choose from the students who have been awarded general scholarship honors, by grade in speaking and composition during the entire course, a number not to exceed six.

PHI BETA KAPPA

Students may be recommended for election to the Phi Beta Kappa Society from the honor men only. In case the number of these amounts to less than one-fourth of the class, all the honor men may be recommended ; in case general scholarship honors are awarded to more than one-fourth of the class, those averaging highest, not amounting to more than one-fourth of the class, will be selected.

FELLOWSHIP

BLODGETT FELLOW IN SCIENCE

James H. Blodgett, of Washington, D. C., has given to the Trustees \$1,200 for the encouragement of advanced study in the Rutgers Scientific School. Whenever the accumulated income from this investment shall amount to \$200, that sum is to be paid

in quarterly installments to a graduate of Rutgers holding the degree of Bachelor of Science, who shall be selected by a committee appointed by the Faculty and who shall be designated as Blodgett Fellow in Science. The holder of this fellowship shall prosecute graduate studies in the Scientific School for one year. He shall also render assistance to the professor having the direction of such studies, and for that service shall be exempt from the payment of all fees.

BUILDINGS

QUEEN'S COLLEGE

1808-1809

Queen's occupies the central portion of the group of college buildings. It contains twelve recitation-rooms, a commodious lecture-hall, and the offices of the Registrar. It was designed and built by John McComb, the architect of the New York City Hall, and is one of the best structures, architecturally, in the State of New Jersey.

ALUMNI AND FACULTY HOUSE

1841-1842

This building, erected as the President's residence, so used for many years, and more recently devoted to the Fine Arts Department, is now designated for the social uses of Alumni and Faculty. Arrangements are now under way looking to its renovation, furnishing, and maintenance.

VAN NEST HALL

1845

This building was named for Abraham Van Nest, a liberal trustee, in recognition of his services and gifts to the College.

In 1893 it was beautified by the addition of a stone porch, the gift of Mrs. Ann Van Nest Bussing, daughter of Abraham Van Nest, who at the same time refitted the eastern portion of the



North View of Queen's

BUILDINGS

second story into a handsome hall for the regular and occasional exercises of the students in elocution.

During the same year the Trustees added a third story to the original building, thus creating a large and well-lighted room for the use of the classes in draughting. On the second floor is another room for the advanced work in graphics.

The rooms of the Peithessophian and Philoclean Literary Societies on the first floor were thoroughly refitted in 1891, and are for the present devoted to the uses of the Young Men's Christian Association and the department of the English language and literature.

THE DANIEL S. SCHANCK OBSERVATORY

1865

The Observatory, which is named after the donor, is a two-story brick building with revolving dome. The main part contains the telescope; on the west side of the main part is an extension for transit observations.

This building is used in connection with the course in general astronomy to give a knowledge of the sun, moon, planets, etc. Those who elect mathematics and astronomy receive instruction in the use of the instruments and take part in the observations. Graduate students may take a still more extended course.

The longitude of the observatory is $0^h 10^m 29^s$ east of the New Naval Observatory at Washington, D. C.

The latitude is $40^\circ 30' N$.

GEOLOGICAL HALL

1871

This building is occupied by the department of physics, and of geology and mineralogy.

The department of physics occupies seven rooms on the main floor and three in the basement. There are two lecture-rooms, an apparatus-room, a general laboratory, a laboratory for work requiring even temperature, a battery-room and an office.

The department of geology and mineralogy occupies the rest of the building, which consists of a class-room, a laboratory for determinative mineralogy, and an exhibition-room 40 by 84 feet with a gallery, containing the Geological Museum. The class-room and laboratory occupy the second and third floors, respectively, at the front of the building, and open directly into the museum, thus greatly facilitating the use of the collections in class-instruction.

THE KIRKPATRICK CHAPEL

1872

The Chapel was erected with money bequeathed to the College by Mrs. Sophia A. Kirkpatrick. This building is of brown stone in the French Gothic style of the fourteenth century. The Chapel room with gallery has seating capacity for about 350 persons and is used for the daily morning prayers and for the Sunday preaching service. Upon its walls hang the portraits of many of the Presidents, Trustees, and Professors who have in the past served the College. The building also contains a vestry-room, a lecture-room, the Trustees and Faculty room, and the room of the fine arts department.

THE STATE LABORATORY

1888-1889

The erection of this building was authorized by an act of the State Legislature approved 23d April, 1888. It affords accommodations for the uses of the State and Agricultural College Stations, and by the courtesy of the Board of Managers of the State Station (who also constitute the State Board of Visitors to the Agricultural College), for the laboratory and class-room work of the students of the State College who are pursuing the regular and special courses in agriculture, chemistry and biology.

BUILDINGS

WINANTS HALL

1890

This building was given to the College by Garret Ellis Winants, a staunch friend and trustee of the institution. It serves as a dormitory and refectory for such students as choose to lodge and board at the college. It accommodates one hundred students. See Rooms and Board, page 139sq.

THE ROBERT F. BALLANTINE GYMNASIUM

1894

By the generosity of the late Robert F. Ballantine, of Newark, N. J., a trustee of the College, a building was constructed which affords excellent opportunities for physical instruction and exercise, and for military instruction and drill. This gymnasium is situated on spacious grounds given to the College by another trustee, James Neilson, of New Brunswick.

The building is in two parts, the front portion being devoted to purposes of administration, and the rear the gymnasium and drill-room proper. Ample offices are provided for the instructor in military science and the instructor in physical culture. The gymnasium and drill-room combined afford an unobstructed space one hundred feet by sixty in dimensions. Suspended from the truss roof is a running track two hundred and eighty feet in length. Space is also afforded for the armory of the Scientific School.

On one side of the administration portion of the building is a large room for lockers, on the other side a room for military equipments. On the floor above, apartments are provided suitable for various purposes. In the basement are a swimming-tank, shower and needle-baths, a ball-cage and four bowling alleys.

The building is a fine specimen of the Colonial style of architecture.

CERAMICS BUILDING

1902

This building is located on college property adjacent to the campus. The front of the main portion is of the Colonial style, plainly but well executed in buff brick. It contains a commodious laboratory especially adapted and arranged for the purpose of housing the equipment in clay-working and ceramics. The workshop covers nearly 1,700 square feet of floor space, which provides an admirable place for the machinery installed.

There are also store-rooms, a kiln-room, a class-room, and the Director's office and laboratory.

THE RALPH VORHEES LIBRARY

1902-1903

This building is the gift of the late Ralph Voorhees, of Clinton, N. J. Its exterior reflects the spirit of Queen's College, the Long Meadow (Mass.) stone, of a reddish-brown tone, having been chosen for the outer walls, that they might accord as far as possible with the color of the stone used in Queen's. The basement and first floors are thoroughly fireproof, and the rest of the building practically so, the walls and ceilings being either of brick or of plaster on wire lath supported on iron frames. The building contains but few fixed interior walls and therefore offers no obstruction to the development of the library. The stack-rooms may be increased indefinitely toward the north, and the reading-rooms to the east and west, without materially affecting the design.

Access to the Library is had by two doorways. Passing through lobbies, the entrance is direct into a rotunda thirty-seven feet in diameter, with a low dome and lighted by a large central skylight. Opening directly out of this rotunda, east and west, are two reading-rooms, 25 by 28 feet each, with elliptical barrel-vault ceilings and lighted on three sides by large windows above bookcases, which extend around three sides of each room. The Librarian's room and a reference-room are on the front of the first story. Over these

BUILDINGS

are small rooms for special libraries and seminar work. The building is heated and ventilated by a steam indirect-radiation system with auxiliary direct heating as may be required.

AGRICULTURAL BUILDING

1906-1907

This building, erected by an especial appropriation of the State Legislature for the uses of the instructors and students in the Short Courses in Agriculture, contains a large, well-lighted room for dairy work in handling milk and cream, for butter-making, and for the retail trade; laboratories for milk-testing, soil-testing and for horticulture and entomology; recitation rooms, offices for the instructors, and one general meeting and library and reading-room.

Other buildings have been recently erected for use in the Short Courses, including a pavilion sixty feet in diameter, for judging and exhibiting the various breeds of live stock; stables, dairy buildings, silos, poultry-houses, tool-houses, and storage-rooms.

COLLECTIONS AND EQUIPMENT

LIBRARY

The Library contains 51,920 volumes and receives 200 current periodicals; it is open for consultation during each weekday, except holidays, from 8 a. m. to 4.30 p. m., and (except Saturday) from 6.30 p. m. to 9 p. m.; on holidays, from 8 a. m. to 12 m.

Students are allowed free access to the books, and are encouraged to become familiar with the proper methods of using a library for literary work.

In 1887, P. Vanderbilt Spader, of New Brunswick (a member of the Class of 1849), gave to the College his personal library, valued at \$15,000, and consisting of about 5,000 books, among them many very valuable art volumes, and collections especially rich in State and local history, and books of reference. By his will the College has received \$10,000, the income of which is to be expended for the maintenance and increase of the P. Vanderbilt Spader Library Gift.

By the gift of a permanent fund of about \$11,600 from the Honorable Robert H. Pruyn, supplemented by gifts from other sources, the Library is supplied with the leading periodical publications in the various departments.

A valuable private library of about 1,900 volumes, from the estate of the late Benjamin Stephens, of the Class of 1844, has been recently presented to the College, and the Benjamin Stephens Fund, of \$5,000, has been created for the maintenance and increase of this library.

THE SAGE LIBRARY

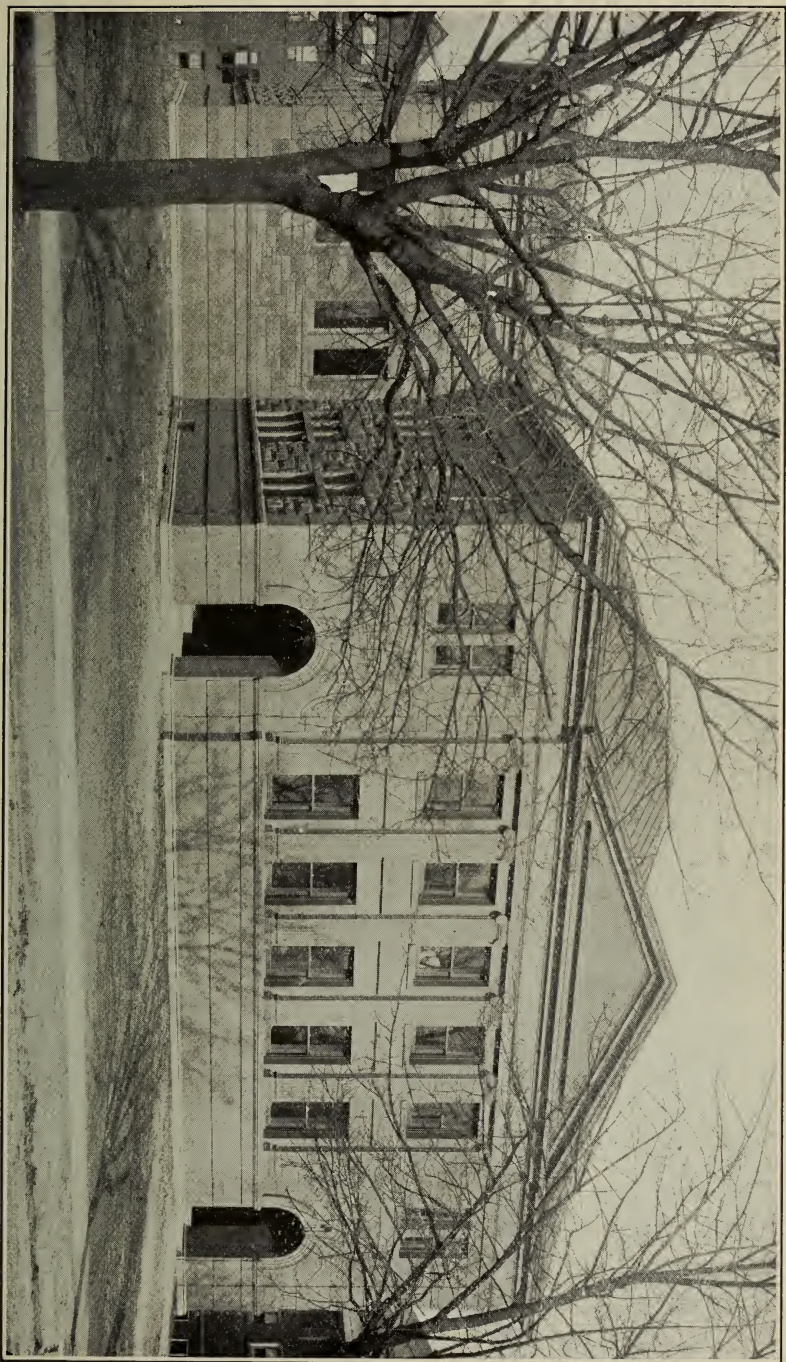
Through the courtesy of the Theological Seminary of the Reformed Church, the Sage Library, containing 47,000 volumes and 8,000 pamphlets, is open to the students of Rutgers College for consultation during each weekday from 9 a. m. to 12.30 p. m. and 2 p. m. to 4.30 p. m.; and under certain limitations books may be drawn from it. It is within four minutes' walk of the College Campus.

HISTORY OF ART

The Fine Arts Room contains the art collections of the College, including "The Thomas L. Janeway, M.D., Memorial Collection" of casts and photographs. This latter collection, intended to illustrate classical archaeology, is the gift of the heirs of Thomas L. Janeway, M.D., of the class of 1863. The room contains:

- 1 Many casts from marbles typical of the chief periods in the history of sculpture.

- 2 Five hundred casts from engraved gems (cameos and intaglios) and coins, Greek and Roman. These were selected to illustrate the historical development of gem-engraving, especially in its best periods.



The Ralph Voorhes Library

COLLECTIONS AND EQUIPMENT

3 Fifteen hundred stereopticon slides of architecture, sculpture, and painting.

4 Fifteen hundred photographs of drawings, sketches, pictures, marbles, and buildings.

5 Many framed photographs and engravings.

6 Several oil paintings and water-color drawings.

7 A miscellaneous collection of antiquities illustrating aboriginal art.

The collections are used continuously in lectures to illustrate not only the art of the different nations but their life, literature, and social culture.

The room is arranged for the illustration of lectures both with transparent and opaque lantern materials.

HISTORY

The Henry Janeway Weston Memorial Collection, consisting of books, engravings, and curios relating to Napoleon I, is deposited in Queen's in a room fitted up for the use of the students, particularly those pursuing certain elective courses in history. This valuable collection was given by Mrs. Katharine Weston, who also furnished the room and at her decease left a sum to provide for its maintenance.

ASTRONOMY

The equatorial refracting telescope is eight feet and four inches in focal length, with an aperture of six and one-half inches, and was made by Henry Pitz, of New York. It has a driving clock, a position micrometer, a number of eye-pieces of various powers, ranging from 50 to 600, and a solar attachment for the study of sun-spots. The declination circle is ten inches in diameter, reading by verniers to one minute of arc, and the hour circle, seven and one-half inches in diameter, reading by verniers to six seconds of time.

The meridian circle used for transit observations was made by Stackpole, of New York, and has an object-glass four inches in diameter and four feet ten inches in focal length, with circles seventeen inches in diameter, reading by two microscopes with micrometer screws to single seconds of arc.

The Observatory has also a sidereal clock, a chronograph, a mean solar clock, and a reflecting circle.

CIVIL ENGINEERING

The collections for illustrating the instruction given in the engineering courses are for the present in Van Nest Hall; they comprise a great variety of models showing details of construction in wood, iron, and stone, with a full set of Schröder and many Olivier models in descriptive geometry, besides blue-prints, working drawings, and lithographs, of roof and bridge trusses. There are also instruments of precision for various uses, such as planimeter, pantagraph, sextants, current-meters, etc. A complete outfit of engineering and surveying instruments is owned by the College for the use of the students in the surveying classes.

PHYSICS

The lecture apparatus comprises the usual instruments. The laboratory contains general apparatus, such as dividing engine, a set of United States standard weights and measures, metric standards, spherometer, planimeter, etc.; various

REPORT OF RUTGERS SCIENTIFIC SCHOOL

optical instruments, including a spectrometer; the necessary apparatus for experiments in heat, including calorimeters, steam engine, gasoline engine, and hot-air engine; also a full set of electrometers, galvanometers, rheostats, dynamos, motors, and telegraph instruments.

The reference books most frequently consulted are kept in the rooms of the department ready for instant use.

ELECTRICAL ENGINEERING

The electrical laboratory is provided with a steam engine, a gas engine, brake and transmission dynamometers, a six K. W. Edison direct-current dynamo, a six K. W. Edison direct-current shunt motor, a four K. W. Crocker-Wheeler direct-current compound dynamo, a five horse-power Crocker-Wheeler series motor, and a General Electric double-current generator, which can be used to furnish either direct current, or single phase, three phase or quarter-phase alternating current, or to convert from direct to alternating current or vice versa; an alternator designed and built by one of the students; transformers of various types and capacities; ammeters, voltmeters, and watt-meters (Weston); an electro-dynamometer, galvanometers of various types, a Leeds and Northrup standard Wheatstone's bridge, and a Leeds and Northrup standard potentiometer for standardizing measuring instruments; standards of electro-motive force, of resistance, of self-induction and of capacity; a secohmmeter, a storage battery, resistance boxes, condensers, and other necessary apparatus.

CHEMISTRY

The two chemical laboratories furnish abundant room to the students and are equipped with filter-pump, water-blast, and tables for organic analyses, besides the ordinary facilities found in all laboratories. An adjoining room has been fitted up as a department library, in which are standard books of reference and the important chemical journals on file. The students are encouraged to spend all spare time in this room. The lecture room is abundantly lighted and the table well fitted for experimental lectures. Special pieces of apparatus are constantly acquired, particularly to illustrate the more difficult points in the new developments of chemistry, and for investigation.

GEOLOGY AND MINERALOGY

The department contains about 30,000 classified and labeled specimens, including about 13,000 mineral specimens, 2,000 rock specimens, and 6,000 fossils, besides illustrative material in several related sciences. These are constantly drawn upon for instruction in geology and mineralogy. The following are the most important systematic collections, most of which are on exhibition in glass cases in the Geological Museum:

- 1 The Cook collection of minerals, containing about 5,000 specimens.

- 2 The Beck collection of minerals, 3,000 specimens, collected by Doctor Lewis C. Beck between 1820 and 1850, chiefly in the State of New York.

- 3 The Chester collection of minerals, containing about 5,000 specimens. It is particularly rich in perfect, typical specimens, and hence is of great value for teaching purposes.

COLLECTIONS AND EQUIPMENT

4 The Geological Survey collection of over 900 specimens of rocks, minerals, and ores of New Jersey.

5 A lithological and structural collection of over 1,500 specimens.

6 The educational series of 156 typical American rocks, prepared and presented by the United States Geological Survey.

7 A paleontological collection of 6,000 fossils arranged according to geological horizon.

8 A magnificent mounted specimen of mastodon, from Mannington, New Jersey, the largest yet discovered.

9 A slab of Triassic sandstone measuring 8 by 18 feet, from Morris county, New Jersey, showing numerous reptilian footprints.

10 Several smaller collections, including a number of large single specimens of considerable value.

Illustrating related sciences, the following notable collections may be enumerated:

11 The Frazee collection of paleolithic and neolithic implements, ornaments, etc., containing 1,700 specimens.

12 A conchological collection, containing over 1,600 specimens of recent shells.

13 The Cuthbert botanical collection, containing a great number of specimens of native and foreign plants.

14 Various large single specimens, including the largest known Japanese spider crab (*Macrocheirus camperi*), which has a span of 11 feet; and the skeleton of a right whale 42 feet long, caught in the Raritan River.

The mineralogical laboratory is supplied with the usual apparatus and reagents for the study of the physical and chemical properties of minerals, a great variety of material for practice in the determination of unknown specimens, a systematic, labeled mineral collection for comparison and verification, a large assortment of glass and wood crystal models, a Zeiss stereo-binocular microscope, and a Fuess petrographic microscope.

For geological instruction, besides the treasures of the Museum, there are a complete set of physical wall maps, a large number of geologic and topographic maps, and the most important text and reference books. A private scientific library of about 500 volumes is also available for reference and advanced study in the elective courses.

The publications of the geological surveys of the various States and of the United States are regularly received by the College Library, besides many similar publications of other countries, and several of the leading periodicals relating to geology, mineralogy, and mining. The geological department of the Library has been greatly enriched by the recent addition of the private libraries of the late Professors Albert H. Chester and George H. Cook.

CLAY-WORKING AND CERAMICS

The equipment of the laboratory is very extensive, consisting of machinery for the manufacture of brick, tile, and pottery as well as apparatus for the physical and chemical testing of clays and other raw materials.

The brick-making outfit consists of an auger brick-machine of a capacity of 20,000 brick a day, a horizontal pug-mill, a dry pan, which may also be used as a wet pan, and a down-cut board-delivery table. The tile and the pottery machinery include a miniature slip-house plant, having a blunger, agitator,

lawn screen, slip-pump and filter press with a capacity of 500 to 1,000 pounds a day, a four-jar glaze mill, a large-size ball-mill, a potter's wheel, a combination jigger and pull-down, a potter's pug-mill, a hand jigger, a reversible bench-lathe, a tile-press, a wad-machine, bench-whirlers, and other necessary appliances, all of the latest design and representative of the chief types used in the manufacture of a wide range of wares. Power is generated by a 30 h. p. electric motor and distributed by two lines of shafting.

A kiln has been provided, which is sufficiently large to hold a quantity of wares of various sorts. It is so constructed as to be used either as an up-draught or a down-draught, thus representing the two chief types. Frit furnaces and an improved Seger furnace are also at hand. A Le Chatelier pyrometer and Seger cones are available for use in the study of the phenomena associated with high temperatures.

For the storing of unfinished wares which are to be kept in a moist condition, a wet-closet has been provided. This is a small room built of brick, with cement floor and terra-cotta lumber ceiling. By occasionally wetting the walls and floor, it is possible to maintain a constantly humid atmosphere within.

The library of the department, which is a collection of the more important technical literature relating to clay-working and ceramics, is kept in the classroom, where it is accessible to the student. This collection comprises periodicals, both current and bound numbers, and books from French, German, English, and American sources.

There is also a collection of ceramic wares in process of installation.

AGRICULTURE AND BIOLOGY

These departments, including botany, entomology, and zoölogy, have an equipment for purposes of instruction consisting of the following:—

1 *College Farm*

The barns and other buildings are modern in their construction, and serve as models of convenience and in economy of space. The equipment is of the most modern type, including all of the necessary tools and implements required for farm practice. The live stock includes representatives of the leading breeds of horses, dairy cattle, swine, and poultry. The intensive system is practiced; it includes soiling, green manuring, and all the natural and artificial aids necessary, in continuous cropping, to secure maximum yields. A special study is made of forage crops for the dairy, and all the leading crops in this group are grown.

The Farm is, on the whole, an object lesson, not only in modern and profitable practice, but in showing the economical manufacture of crude crop material into high-class products, such as milk and cream, for which all the modern appliances are used. Business methods are observed throughout.

On the experimental areas, the leading varieties of fruits, berries, and vegetables are grown, and scientific methods of fertilizing, manuring, and cultivating are used. The plant-houses, used primarily for experimentation in soil physics and the forcing and breeding of plants, afford opportunity for students to observe the behavior of plants under glass.

Models of farm buildings, illustrating the best methods of construction, besides those illustrating various interior arrangements, such as stalls for horses and cattle, are available for instruction.

An irrigation plant designed to supply the water needed by vegetables and fruits on at least ten acres, is now in operation.

COLLECTIONS AND EQUIPMENT

2 Laboratories

Separate rooms for botany, for entomology, and for zoölogy have been equipped with tables, accessory microscopic apparatus, histological reagents, microtomes, material for dissection, twenty compound microscopes (Bausch and Lomb's, Reichert's and Leitz's), giving powers up to 800 diameters, and also with many dissecting microscopes.

3 Auzoux Models, illustrating the structure of man, cow, bird, reptile, fish, snail, starfish, ascidian, medusa, worm, insects (cockchafer, silkworm larva and moth, honey-bee and its work), and plants (various flowers, fruits and fungi).

4 Charts (including many of Leuckart's), illustrating the various parts of the living world; also many photographs and lantern slides.

5 Cabinets: a collection of slides illustrating histology and the anatomy of minute animals, especially the insects; a collection of 5,000 species of insects systematically arranged; also a collection of nearly 25,000 plants.

6 Museums: a collection of stuffed animals and alcoholic specimens systematically arranged, sixty large boxes containing a collection of injurious insects and examples of their work, a systematic collection of over 5,000 species of American insects, preparations of pathological plant specimens, a collection illustrating the biology of the oyster, its messmate and enemies, and a fine systematic collection in conchology.

7 Besides this equipment for direct instruction, the student has brought under his observation the equipment of the research laboratories of the experiment stations in working operation, such as the instruments used in the study of milk, soils, fertilizers, bacteria, mycology, micro-photography, insecticides, fungicides, and in other experiments relating to agriculture.

8 The Hulst Collection

The Hulst Collection of *Lepidoptera* represents the life work in entomology of the Reverend George D. Hulst, PH.D. It consists of two parts: the first, a general collection of butterflies and moths, was presented to the College in 1890, and was received and cared for soon afterward by the Professor of Entomology; the second part, though included in the original gift, was retained by the donor during his lifetime and increased in value by the scientific labor on it. This came into the possession of the College in 1901 and contains 1,217 species, of which 549 are types of descriptions written and published by Doctor Hulst, in 3,830 specimens. In the families studied by him, this collection is without a peer. Exclusive of these special families there are in the first part 828 species, including twelve types, in 2,775 specimens. The entire collection thus contains 2,195 species, 561 types, and 6,605 specimens.

9 The Smith Collection

The Smith Collection of *Lepidoptera* represents the work done by Professor John B. Smith during his connection with Rutgers College. The collection is especially rich in the family of noctuid or owlet moths, where, at the latest enumeration, 1,683 species (348 of them types) were represented by 8,930 specimens, figures which have been since materially increased. In addition, there are numerous unarranged and undescribed species and a large series of species in other families. Altogether there are not less than 2,000 species and over 12,000 specimens.

It is fair to estimate the entire college collection of *Lepidoptera*, included in the Hulst and Smith Collections, as exceeding 4,200 species, and closely approaching 20,000 specimens. All are in the new Library building. Not more than three or four collections in the United States exceed this in scientific value.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

SHORT COURSES IN AGRICULTURE

In the dairy the equipment will include all the modern dairy apparatus, separators, sterilizers, coolers, churns, butter-workers, bottlers, bottle-washers, cold-storage apparatus, boilers, engines, and motors.

The dairy barns, in themselves, serve as models for illustrating methods of building and arrangement of stalls. Two silos illustrate the relative value of the large and the small silos for the use of a herd of varying size; besides, the daily feeding of the various kinds and ages of animals is a practical illustration of the preparation and use of balanced rations. There are, in addition, models of farm buildings and stalls for dairy cattle.

The live-stock owned by the College consists of specimens of the four leading dairy breeds—Holstein, Jersey, Guernsey, and Ayrshire; besides these specimens of the leading beef breeds, as the Shorthorn and Aberdeen Angus, will be available for study, and a number of grade dairy cows.

The breeds of sheep will include specimens of the Horned Dorsets, Shropshires, and Southdowns, and it is planned to have Berkshire, Jersey Red, Yorkshire, and perhaps other breeds of pigs. The varieties of poultry will include the White Plymouth Rock, Buff Plymouth Rock, White Wyandottes, Orpington, and others. Good types of draft, driving, and saddle horses will also be available for instruction.

In addition to the equipment and crops in the greenhouses, the various types of spraying apparatus and tools used in market gardening will be a part of the equipment for the course in fruit-growing and market gardening.

ATHLETICS

In order to secure for the students the benefits of out-of-door exercise, athletic sports are encouraged by the provision of adequate facilities. Rightly controlled, such sports have shown themselves beneficial both to the health of the students and to the quality of the work done, and are manifestly in the interest of good order. The more prominent athletes have been generally among the more earnest and successful students.

The proper control of athletics has been secured by the organization of an incorporated Athletic Association, supported by the students and controlled by a board of nine trustees, chiefly composed of resident alumni. In this board the Faculty has always had one or more representatives.

Details in the conduct of athletics are in charge of a Board of Managers, which meets once a month during the college year. This board is composed of a representative of the Faculty, three alumni, three undergraduates, together with the President and Treasurer of the association, the Chairman of the Board of Trustees of the Athletic Association, and, ex-officio, the Physical Director of the College. In this way a cordial coöperation has been steadily maintained between Faculty and students, thus avoiding the need for the exercise of direct authority.

COLLECTIONS AND EQUIPMENT

THE ATHLETIC FIELD

By the generosity of James Neilson, of New Brunswick, an alumnus and trustee of the College, an athletic field is provided containing more than five acres, at a walking distance of about eight minutes from the College Campus.

It is furnished with a commodious grandstand with dressing rooms and bath-rooms attached.

A quarter-mile running track has been constructed, and the inner field separated from the space allotted to spectators by a picket fence, running along one side of the field.

THE BOATHOUSE

With funds secured from the undergraduates, alumni, and friends of the College, a commodious boathouse has been built, conveniently situated for the use of those interested in boating.

GENERAL INFORMATION

STUDENT SELF-GOVERNMENT.

Faculty and students coöperating, a system of student self-government has been developed by the College. In 1893-94, special joint committees of Faculty and students, with equal representation of both bodies, were formed as cases for discipline arose. In 1894-95, the Faculty and the students instituted a standing joint committee for the year, consisting of the President of the College, two professors, two seniors, two juniors, one sophomore and one freshman. In 1895-96, a standing committee of students only was formed, having the President as presiding officer, with no vote save in case of a tie. This board consisted of four seniors, four juniors, two sophomores and two freshmen, chosen by their respective classes. In 1896-97, the Faculty, acting upon suggestions made by the student board, formulated a constitution, which was accepted for the year by the Trustees of the College and by the students. This constitution has been continued, under the approval of the Trustees. At the present time the Dean is the presiding officer. The names of the members of the student board will be found on page 145.

A resolution of the Faculty of 28th September, 1896, states: "This experience has confirmed the Faculty's trust in the honor and good judgment of our students, its belief in their capacity for self-government, and in the value of the system as a part of their education in citizenship."

REGULATIONS

Morning prayers are attended in the College Chapel each morning except Saturday and Sunday, at 8.40 o'clock.

A Bible class, attendance at which is voluntary, is held Sunday morning in the Chapel Lecture Room at 10 o'clock.

A sermon is preached every Sunday morning in the College Chapel at 11 o'clock. Students are required to be present. They are expected, also, to attend public worship in the afternoon or evening, at such place as their parents or guardians may direct.

Excuse for every absence from college duties must be presented to the Registrar. In case the Registrar refuses to excuse an absence, the student is not allowed to make up the recitation omitted, and receives zero for it.

All subjects are graded and reported to the Registrar with percentages on the scale of 100. To these grades the Registrar attaches letters in accordance with the following table:

GENERAL INFORMATION

<i>Grade</i>	<i>Value</i>	<i>Letter</i>
90—100	Very high	A
80— 89	High	B
70— 79	Medium	C
60— 69	Low	D

A student falling below 60 per cent. in term grade in any subject will be conditioned, and reported as E

A student falling below 60 per cent. in the examination on any subject must be reexamined, and will be reported as F

A record incomplete in any subject by reason of absence during the term or from the examination will be denoted as G

The above letters only are reported to students, and their parents or guardians.

The average standing of each student is made up at the end of each term, and sent, in the form above indicated, to his parent or guardian.

An examination grade is equated as one-third of the term grade in the same subject up to the time of examination. The marks given in elective work do not enter into the ordinary computation of grade; they serve only for the guidance of the professors concerned and of the Faculty in determining the Commencement honors at graduation.

EXAMINATIONS

The classes are examined at the close of each term. These examinations are partly oral and partly written, and have an important bearing upon the standing of the student in his class.

Unexpected examinations at irregular intervals are held at the discretion of each instructor. The object of these examinations is to cultivate the habit of considering the relations of each day's work to what has been done before, and to stimulate effort on the part of each student to gain a comprehensive knowledge of the subjects studied.

At the end of the first and second terms, the examinations of the classes in the Scientific School are held in the presence of the Board of Visitors, who then make their semi-annual visits to the institution.

The final examination of the graduating class is held four weeks before Commencement, from which time the members of this class are subject to such duties as are required for their preparation for Commencement.

If any student shall at any time be found notably deficient in his daily recitations or at the examination, in any of his studies, his case will be reported to the Faculty, and such action by way of discipline will be taken as may be deemed necessary.

If any student's average grade for the first term falls below 60 per cent of the maximum, he will lose his standing in his class and be required to fall back a year in the course.

Any student who has failed to remove all his deficiencies on or before the opening day of the college year will lose his standing in his class. If he fails to remove all his deficiencies on or before the first Saturday after the opening of college, he will not be reinstated in his class, and will be required to fall back a year in the course.

For the removal of deficiencies a regular schedule of examinations is fixed.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

COLLEGE EXPENSES

GENERAL ESTIMATE

	Per Year	
Board, 36 weeks, \$3.50 to \$5.00 a week	\$126.00	\$180.00
Room-rent, \$1.00 to \$1.50 a week	36.00	54.00
Laundry	18.00	18.00
Tuition, \$37.50 a term	75.00	75.00
Public-room service (gymnasium, \$6.00; library, \$6.00; janitor and fuel, \$18.00)	30.00	30.00
	<hr/>	<hr/>
	\$285.00	\$357.00

For remission of charges for tuition and public-room service, see Scholarships, below.

For further information concerning rooms and board, see next page.

For information concerning the expenses of the Short Courses in Agriculture, see page 140.

SPECIAL FEES

The following fees are payable once only in the college course:

Admission fee, freshman year	\$5.00
Graduation fee, payable before senior final examinations	7.00
Certificate fee, payable after a special or partial course	5.00

In addition to the above, students taking draughting, or laboratory work in chemistry, electricity, biology, ceramics, or physics (see Schedule of Studies, page 37sq.), are required to pay fees in accordance with the following schedule; but for the student taking only regular work, they will in no case exceed \$30.00 for any one year.

	Per Year
Draughting, extra after freshman year	\$15.00
Chemistry, last three years in the Chemical Course	30.00
Chemistry, last two years in the elective course	15.00
Electrical Engineering, last two years	15.00
Biology, last two years	15.00
Ceramics, senior year (Short Course, second year)	30.00
Physics, senior year	15.00

For remission of special fees, see Scholarships, below.

SCHOLARSHIPS

To students holding State scholarships under the act of 1864 and to those holding scholarships at large (see page 21sq.), the charge of \$75.00 a year for tuition will be remitted; but not the charge for public-room service or the special fees. This reduces the minimum and maximum estimates for general expenses to \$210.00 and \$282.00, respectively.

To students holding State scholarships under the act of 1890, as amended by the act of 1905 (see page 22), the charges for tuition, and also those for public-room service and all special fees, are remitted. This reduces the minimum and maximum estimates for general expenses to \$180.00 and \$252.00, respectively.

See also General Scholarships, page 21.

GENERAL INFORMATION

REMARK

All college bills are payable within ten days after the beginning of each term, one-half of each annual charge or fee being due each term. All checks should be made payable to the Treasurer of Rutgers College.

ADDITIONAL EXPENSES

The preceding estimates do not include books, clothes, traveling expenses, etc., as these depend upon circumstances and the habits of the individual.

Students in the Bachelor of Science Course are required to procure sets of draughting instruments, costing from \$10.00 to \$20.00. They are advised to defer the purchase of these instruments until entering college, as they will then have the advantage of procuring them under the direction of the Professor of Graphics.

Students pursuing the Course in Chemistry and the Course in Electrical Engineering are expected to provide themselves, at their own expense, with the necessary sets and pieces of apparatus, which may be obtained from the regular apparatus dealers, or from the Laboratory Supplies Department. These sets are retained throughout the year, but at the end of that time, if the owners do not wish to keep them, they will be purchased at a fair price. If proper care has been exercised, a small discount only (about 10 per cent) from the original cost will be made. All breakage and damage to college apparatus will be charged in full.

Students taking military drill are required to purchase a uniform, consisting of cap, blouse, and trousers, of dark-blue cloth, the cost of which is about \$14.00, or considerably less than that of a good suit of civilian's clothes. The entire suit is neat and serviceable, and, while required to be worn at drills, may be worn on any occasion.

ROOMS AND BOARD

The following schedule for 1907-1908 gives the weekly rental for each occupant of the respective rooms in Winants Hall, and no more may occupy any suite than is indicated in parenthesis after the room numbers. One student occupying a double room, or two students occupying a room intended for three, will be charged the full rental for the suite.

\$1.00 PER WEEK

1(1), 5(3)
11(1), 15(1), 16(1)

23(3), 34(3)
55(3), 66(3)

70(3), 81(3)
98(2)
102(3), 113(3)

116(1), 117(1), 118(2), 121(3)

127(3), 133(2), 135(1), 136(1), 137(2)

First Floor

North
South

Second Floor

North
South

Third Floor

North
Middle
South

Fourth Floor

North
Middle
South

\$1.50 PER WEEK.

2(2)
12(2), 17(2)

26(2), 29(1), 30(1), 31(2)
58(2), 61(1), 62(1), 63(2)

73(2), 76(1), 77(1), 78(2)
87(2), 90(2), 97(1), 99(1)
105(2), 108(1), 109(1), 110(2)

140(1)
124(2)

REPORT OF RUTGERS SCIENTIFIC SCHOOL

The entire building is heated by steam. Bathrooms, lavatories, and store-rooms are on each floor. Ample provision is made of fire-escapes and other securities against accidents.

The rooms are arranged in suites of three, a study and two sleeping-rooms for two or three students; there are also a few single rooms. The large study-rooms are each furnished with two study-tables and two chairs. The bedrooms are each furnished with a solid-oak set, consisting of bedstead (springs and mattress), bureau, and washstand. The remaining furniture such as sheets, pillows, pillow-cases, coverlets, towels, bowl and pitcher, etc., are to be supplied by the occupant. The schedule of prices for single rooms and suites of rooms includes heat and gaslight.

Rooms are to be taken for the full year. Rent is payable in advance, one-half at the beginning of each term. Agreement to pay rent is for the entire suite, and must be signed by the student who draws it, or his guardian. Rooms may be occupied from the Monday preceding the opening of the college year to the Saturday following Commencement.

In drawing for choice of rooms, the order of classes will be followed, precedence being given to the Seniors. The drawing for choice of rooms for the year 1908-1909 will take place in the Registrar's office on Wednesday, 3d June, 1908, at 2.30 p. m.

During the present year board is furnished at Winants Hall by the matron at \$3.50 a week.

It will be seen from the foregoing statements and schedule that board, lodging, heat, and light may be had in Winants Hall at a cost varying from \$4.50 to \$5.00 a week.

Accommodations can be found elsewhere at about the same rates; but the Faculty are empowered to pass such regulations relative to the number of boarders in each house as they may think proper, and students are permitted to board only at such places as are approved by them.

SHORT COURSES IN AGRICULTURE

Tuition is free to residents of New Jersey; non-residents pay a tuition fee of \$25.00. There will be an entrance fee of \$5.00 to cover incidental expenses in laboratory work, use of apparatus and instruments, and breakage. Practically the only expense of the course will be the cost of living in New Brunswick and the railroad fare to and from the city. Comfortable rooms, with table board, can be obtained within ten or fifteen minutes' walk of the Agricultural Building for from \$4.00 to \$6.00 per week. The cost of books need not be more than \$5.00, but it would be well, if possible, to allow a larger sum for them, as many not required would be useful for students and should be a part of their home libraries. The total expenses of the course may, therefore, range from \$60.00 to \$100.00, and should not exceed an average of \$75.00 for each student. The required entrance fee must be paid to the Treasurer of the College on the opening day.

REGISTER

STUDENTS

GRADUATE STUDENTS.

	RESIDENCE	ROOMS
Brown, Percy Edgar, B.Sc. Rutgers Scientific School, 1906 <i>Agricultural Bacteriology, Organic Chemistry, Agricultural Chemistry</i>	Woodbridge, N. J.	116 Hamilton St.
Dickerson, Edgar Leek, B.Sc. Rutgers Scientific School, 1902 <i>Entomology, Botany, Chemistry</i>	Newark, N. J.	Bleecker Place
Shore, Nahum David, B.Sc. Rutgers Scientific School, 1906 <i>Plant Breeding, Plant Histology</i>	Boston, Mass.	69 Schureman St.

SENIOR CLASS

CLASS OF 1908

	RESIDENCE	ROOMS
Berdan, Will Wiseman	Paterson	Beta Theta Pi
Black, Cunningham Drysdale	Port Jervis, N. Y.	Chi Phi
Brokaw, Eugene Suydam	Bound Brook	Chi Psi
Carman, Charles Bloomfield	Rahway	Rahway
Du Bois, Warren Livingston	Freehold	137 Winants
Elliot, Charles	Scotch Plains	Scotch Plains
Feller, Harry Samuel	New Brunswick	40 Richmond St.
Finch, Charles Burhans	Kingston, N. Y.	Chi Psi
Fisher, Douglas Judson	Sayreville	Beta Theta Pi
Fox, Alvin Bartholdi	Perth Amboy	93 Winants
Gies, Howard Somerville	Newark	Delta Upsilon
Glück, Morris James	Perth Amboy	136 Winants
Hemmer, Max J., Jr.	Newark	D. K. E.
Hopler, Thornton Mills	Newark	135 Winants
Hovey, Harold Frederick	Buffalo, N. Y.	Delta Phi
Jemison, Harris Alison	Kingston	99 Winants
Kent, Elmer Williamson	New Brunswick	225 Townsend St.
Levenson, Harry	Woodbine	3 High St.
Luffburrow, Robert Allen	Atlantic Highlands	Delta Upsilon
Mahnken, Alfred John	Union Hill	124 Winants
Mason, Clifford Lea	Trenton	118 Winants
Merrill, Bergen Stelle	Moore, Pa.	118 Winants
Moffett, John William	Fords	Fords
Owen, Irving Lovejoy	Wyoming, N. Y.	2 Winants
Pfersch, Clarence Louis	Hoboken	26 Winants
Rice, Richard Coxe	New Brunswick	82 Carroll Pl.
Safford, Daniel	Brooklyn, N. Y.	Beta Theta Pi
Seddon, William Personet	Paterson	Chi Phi
Segoine, Harold Richard	Point Pleasant	Delta Upsilon

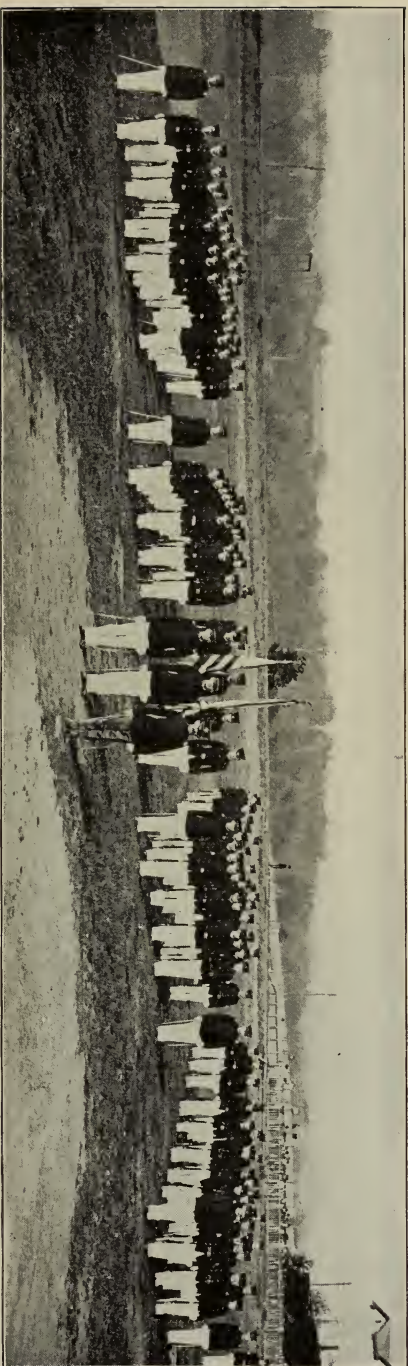
REPORT OF RUTGERS SCIENTIFIC SCHOOL

	RESIDENCE	ROOMS
Smith, James Herbert	<i>North Plainfield</i>	140 Winants
Steelman, Martin Somers	<i>Ocean City</i>	32 Hertzog
Stimson, Frank Sanford	<i>Linden</i>	Linden
Swift, Arthur Cunningham	<i>Red Bank</i>	Zeta Psi
Warner, Charles Maxwell	<i>Elizabeth</i>	Chi Phi
Wheat, Howard Irving	<i>Brooklyn, N. Y.</i>	Beta Theta Pi
Wilbur, Clarence Alexander	<i>Catskill, N. Y.</i>	33 Hertzog
Wyman, Theodore, Jr.	<i>Somerville</i>	110 Winants

JUNIOR CLASS

CLASS OF 1909

	RESIDENCE	ROOMS
Alford, Edwin Conrad	<i>Brooklyn, N. Y.</i>	99 Winants
Allen, Robert Goldsmith	<i>Red Bank</i>	108 Winants
Appleby, Theodore Frelinghuysen	<i>Old Bridge</i>	Beta Theta Pi
Baldwin, Raymond Leslie	<i>Caldwell</i>	41 Mine St.
Beekman, Myron Hamilton	<i>Red Bank</i>	College Farm
Cloke, Allen Dale	<i>Rahway</i>	Rahway
Demarest, Samuel S.	<i>Bergenfield</i>	Beta Theta Pi
Fenn, Herbert Bennett	<i>Jersey City</i>	58 Winants
Greenewald, Carl Herbert	<i>Moorestown</i>	41 Mine St.
Hand, Morgan, Jr.	<i>Ocean City</i>	Zeta Psi
Hawley, Ernest Freeman	<i>New York City</i>	90 Winants
Hendler, Davis Louis	<i>New Brunswick</i>	72 Dennis St.
Hunt, Augustus	<i>Philadelphia, Pa.</i>	Delta Upsilon
Janvier, John Whildin	<i>Bridgeton</i>	58 Winants
Kaletsch, Hans Max	<i>Perth Amboy</i>	Perth Amboy
Lawrence, Clifford Hampton	<i>Bloomfield</i>	D. K. E.
Miller, Benjamin Marshall	<i>Oxford, N. Y.</i>	Chi Psi
Morrison, Frank Ambrose	<i>Ridgefield Park</i>	Delta Phi
Mulheron, George Washington	<i>Trenton</i>	124 Winants
Newmark, Julius Joshua	<i>Plainfield</i>	15 Winants
Pringle, Arthur Douglas	<i>Albany, N. Y.</i>	Chi Phi
Ramsen, Halsey Edmund	<i>Newark</i>	D. K. E.
Ransom, William Raymond	<i>Rahway</i>	Rahway
Read, Frederick Foster	<i>Arlington</i>	Delta Upsilon
Ritter, Ralph Frank	<i>Rahway</i>	Rahway
Rugen, Walter Henry	<i>Bound Brook</i>	Bound Brook
Smith, Clayton Sidney	<i>Newark</i>	Newark
Smith, Rhea Gordon	<i>North Plainfield</i>	140 Winants
Sommers, Ford C.	<i>Cobleskill, N. Y.</i>	134 Winants
Strager, Zacharya Hirsch	<i>Plainfield</i>	29 Winants
Steinke, Rudolph Frederick	<i>Elizabeth</i>	98 Winants
Taverner, Samuel Royce	<i>Ballston Spa, N. Y.</i>	D. K. E.
Tisdall, Fitz Gerald, Jr.	<i>Woodbridge</i>	Woodbridge
Van Keuren, William Lloyd	<i>Union Hill</i>	32 Hertzog
Van Sickle, Rushworth Burton	<i>New Brunswick</i>	140 Welton St.
Wallace, William Henry	<i>Moorestown</i>	Zeta Psi
Walling, Raymond Benjamin	<i>Port Monmouth</i>	134 Winants
Wenneis, John Michael	<i>Weehawken</i>	26 Winants



Battalion on Nelson Field

REGISTER

SOPHOMORE CLASS

CLASS OF 1910

	RESIDENCE	ROOMS
Beekman, Jesse Harold	<i>Sayreville</i>	87 Winants
Booz, Louis Paxson, Jr.	<i>Perth Amboy</i>	Perth Amboy
Bowler, Frank Iverson	<i>Woodbridge</i>	Woodbridge
Butler, Charles William, 2d	<i>East Hackensack</i>	Chi Psi
Buzby, John Stewart	<i>Moorestown</i>	Zeta Psi
Case, Willard Trotter	<i>Ballston Spa, N. Y.</i>	D. K. E.
Coplan, Hyman Nathan	<i>Elizabeth</i>	Elizabeth
Denise, Tunis	<i>Freehold</i>	Delta Upsilon
Dilts, Howard Kirkbride	<i>Flemington</i>	Beta Theta Pi
Duryee, William Budington, Jr.	<i>Freehold</i>	Freehold
Dygert, Warren Benson, Jr.	<i>Pittsburg, Pa.</i>	70 Winants
Fales, Eugene Warren	<i>Buffalo, N. Y.</i>	11 Union St.
Faussett, William Wilson	<i>Trenton</i>	Delta Phi
Fell, Scott Miller	<i>Trenton</i>	D. K. E.
Franklin, Kenneth Sherman	<i>New Brunswick</i>	98 Winants
Garrison, William Powell	<i>Roadstown</i>	D. K. E.
Germann, Charles William	<i>Richmond Hill, N. Y.</i>	Beta Theta Pi
Goode, Elbert Trescot	<i>New York City</i>	Zeta Psi
Green, Clarence Whitaker	<i>Brooklyn, N. Y.</i>	Beta Theta Pi
Green, Harry Dunn	<i>Salem</i>	Chi Phi
Haelig, William Henry, Jr.	<i>Bound Brook</i>	Beta Theta Pi
Hanson, Thomas Laughlin	<i>Perth Amboy</i>	87 Winants
Hommann, Charles Chauncey, Jr.	<i>Perth Amboy</i>	109 Winants
Jahn, Julius Ferdinand	<i>Linden</i>	Linden
Ketcham, Clarence Searle	<i>Newburgh, N. Y.</i>	Beta Theta Pi
Leslie, Edwin Thomas	<i>Newark</i>	Delta Upsilon
McMichael, Arthur Thomas	<i>Laurel Springs</i>	116 Winants
Manley, Arthur Ten Eyck	<i>New Brunswick</i>	132 Hamilton St.
Martin, Luther Harned	<i>Metuchen</i>	61 Winants
Moffett, Ernest Cutter	<i>Fords</i>	Fords
Murphy, Arthur Boyle	<i>Albany, N. Y.</i>	Chi Phi
Nafey, Herbert William	<i>Highland Park</i>	Highland Park
Noe, Sydney Philip	<i>Woodbridge</i>	Woodbridge
Nutt, Robert	<i>Cliffside</i>	Chi Psi
Peffer, Burt Jesse	<i>Bliss, N. Y.</i>	105 Winants
Perlee, Ralph Nevius	<i>New Brunswick</i>	179 New St.
Powell, Henry Rice	<i>Bridgeton</i>	Chi Phi
Rowland, James Edward	<i>Long Branch</i>	D. K. E.
Rugen, Robert Ernest	<i>Bound Brook</i>	Bound Brook
Schenck, Willard Earle	<i>New Brunswick</i>	28 Paterson St.
Schneider, Edward Reily	<i>New Brunswick</i>	54 Easton Ave.
Thomson, James Claude	<i>Middlebush</i>	Chi Psi
Tozier, Edwin Stone	<i>Warsaw, N. Y.</i>	105 Winants
Van Mater, Augustus Blanchard	<i>New Brunswick</i>	72 Welton St.
Van Winkle, Frank Hasbrouck	<i>Jersey City</i>	Zeta Psi
Wyckoff, Nathaniel Cain	<i>Millstone</i>	Gymnasium
Yates, Charles James Manley	<i>New Brunswick</i>	235 Hamilton St.

REPORT OF RUTGERS SCIENTIFIC SCHOOL

FRESHMAN CLASS

CLASS OF 1911

	RESIDENCE	ROOMS
Baldwin, George Howard	<i>Brooklyn, N. Y.</i>	31 Winants
Baldwin, Lester Douglas	<i>Caldwell</i>	34 Winants
Bartholmew, Harland	<i>Brooklyn, N. Y.</i>	Zeta Psi
Best, Harold Silas	<i>New Brunswick</i>	243 George St.
Bissett, John Vail	<i>New Brunswick</i>	420 George St.
Brewster, Herman Clark	<i>Cornwall, N. Y.</i>	121 Winants
Burns, Alan Elwin	<i>Highland Park</i>	Highland Park
Carl, Malcolm Langstroth	<i>Bloomfield</i>	D. K. E.
Cooper, Thomas Shipman	<i>Cranford</i>	Chi Phi
Dana, Edward Clarkson	<i>Metuchen</i>	Metuchen
Day, Carlos Philemon	<i>West Hartford, Conn.</i>	29 Hertzog
De Baun, Roscoe William	<i>Caldwell</i>	34 Winants
Dixon, Harold Wilson	<i>Highland Park</i>	Highland Park
Durham, Willard Conklin	<i>New Brunswick</i>	264 Seaman St.
Eakins, Wallace Todd	<i>Paterson</i>	30 Winants
Fisher, George Stanley	<i>Plainfield</i>	66 Winants
Forsyth, Joseph Robert	<i>Little Falls, N. Y.</i>	222 Suydam St.
Fox, Edward Lyell	<i>New York City</i>	78 Winants
French, Duane Burney	<i>Warsaw, N. Y.</i>	D. K. E.
Freund, Louis Rochester	<i>Newark</i>	81 Winants
Fulton, Clarence Edwin	<i>New Brunswick</i>	214 Handy St.
Haasis, Ferdinand Wead	<i>Rahway</i>	Rahway
Heidingsfeld, Ralph	<i>New Brunswick</i>	40 Albany St.
Henszey, Roy Ormonde	<i>Ashland</i>	117 Winants
Herber, John LeRoy	<i>Delmar, N. Y.</i>	College Farm
Jacquart, Charles Edward	<i>South River</i>	South River
Jones, George Edward	<i>Hackensack</i>	Chi Psi
Keebler, Charles Morris, Jr.	<i>Glassboro</i>	62 Winants
Koester, Frederick Ernest	<i>Hackensack</i>	Chi Psi
Kreh, Henry, Jr.	<i>Elizabeth</i>	Elizabeth
Leeds, John Kean	<i>Elizabeth</i>	Chi Phi
Leslie, Harold David	<i>Newark</i>	Delta Upsilon
McDougall, Walter Burroughs	<i>Westfield</i>	18 Winants
Merrill, Louis Fowler	<i>Sergeantsville</i>	172 College Ave.
Moore, Lewis Bassett	<i>Flushing, N. Y.</i>	D. K. E.
Nelson, Samuel Maximilian	<i>Highland Park</i>	Highland Park
Nichols, Benjamin Harrison	<i>Albany, N. Y.</i>	81 Winants
Oley, Warren Wilcox	<i>Wortendyke</i>	College Farm
Palmer, Dorrance Wilson	<i>Brooklyn, N. Y.</i>	102 Winants
Parker, Frank Russell	<i>Little Silver</i>	23 Winants
Patterson, Raymond Sears	<i>Metuchen</i>	Metuchen
Pierson, Harold Clarkson	<i>Newark</i>	221 Seaman St.
Presley, Earl Warren	<i>Arlington</i>	102 Winants
Rochford, Willis Earl	<i>Trenton</i>	113 Winants
Rogers, Charles Russell	<i>Ocean Grove</i>	Delta Upsilon
Safford, George	<i>Brooklyn, N. Y.</i>	Beta Theta Pi
Sangster, George Munson, Jr.	<i>Glen Ridge</i>	Beta Theta Pi
Schofield, Harold Ellison	<i>Philadelphia, Pa.</i>	23 Winants

REGISTER

	RESIDENCE	ROOMS
Sexton, John Roderick	<i>Long Branch</i>	Delta Upsilon
Sillcox, Harold	<i>Newark</i>	Newark
Slack, Willard Stolth	<i>Trenton</i>	D. K. E.
Smith, Frederick Martin	<i>Plainfield</i>	63 Winants
Smith, Howard Anthony	<i>New York City</i>	78 Winants
Smith, John Burleigh	<i>Elmer</i>	Chi Phi
Smith, William Alfred	<i>Newburgh, N. Y.</i>	17 Winants
Steelman, Hiram, Jr.	<i>Ocean City</i>	23 Winants
Stelle, Clarkson Provost	<i>Milltown</i>	Milltown
Stillwell, Earle Cook	<i>Freehold</i>	76 Winants
Stout, George Walter	<i>New Brunswick</i>	52 Hertzog
Van Ness, Lloyd Mervyn	<i>Caldwell</i>	34 Winants
Van Dyck, Leonard Kip	<i>Philmont, N. Y.</i>	39 Hertzog
Voorhees, John Haring	<i>New Brunswick</i>	College Farm
Wackenhuth, Carl	<i>Newark</i>	Zeta Psi
Welsh, Arthur Déady	<i>New Brunswick</i>	108 Somerset St.
Whyte, Arthur Groves	<i>Jersey City</i>	Delta Upsilon
Woolston, Japhet Bishop	<i>Trenton</i>	113 Winants

SPECIAL STUDENTS

NOT CANDIDATES FOR A DEGREE

	RESIDENCE	ROOMS
Atwood, Will Gillespie	<i>Hackettstown</i>	22 Hertzog
Coleman, David Fleming	<i>Tottenville, N. Y.</i>	77 Winants
McDermott, Joseph Thompson	<i>Elizabeth</i>	Zeta Psi

SUMMARY

GRADUATE STUDENTS	3
SENIORS, CLASS OF 1908	37
JUNIORS, CLASS OF 1909	38
SOPHOMORES, CLASS OF 1910	47
FRESHMEN, CLASS OF 1911	66
SPECIAL STUDENTS	3
TOTAL	194

STUDENT SELF-GOVERNMENT COMMITTEE

1907-1908

DEAN F. C. VAN DYCK, EX-OFFICIO

Harry F. Brewer '08	James W. Babcock '09
Douglas J. Fisher '08	Frank A. Morrison '09
Max Hemmer, Jr. '08	Frederick F. Read '09
Elmer W. Kent '08	Raymond B. Walling '09
Harry D. Green '10	Raymond S. Patterson '11
James C. Thomson '10	Lloyd M. Van Ness '11

REPORT OF RUTGERS SCIENTIFIC SCHOOL

SHORT COURSES IN AGRICULTURE, 1907

	RESIDENCE
Miss Lois M. Alden	<i>Passaic</i>
E. L. Beekman	<i>Middletown</i>
William Y. Bolitho	<i>Camden</i>
William A. Brandenburg	<i>North Arlington</i>
George H. Cook	<i>Hanover</i>
Charles W. Crane	<i>Summit</i>
Walter H. Davis	<i>Woodstown</i>
Louis Edwards	<i>Woodstown</i>
Lawrence Esselstyn	<i>Claverack, N. Y.</i>
Rhea C. Fountain	<i>Newton</i>
Everett Garwood	<i>Ashland</i>
Rudolph R. Herms	<i>Morristown</i>
Edward J. Hight	<i>Raritan</i>
Samuel G. Holmes	<i>Moorestown</i>
George S. Hyde	<i>Bloomfield</i>
Nicholas Jensen	<i>Woodbridge</i>
Elbert Kirby	<i>Mullica Hill</i>
Peter R. Letson, Jr.	<i>Stelton</i>
Mrs. L. Martin	<i>New Brunswick</i>
William McLaughlin	<i>Atlantic Highlands</i>
John N. McElmon	<i>Halifax, N. S.</i>
Edward F. Meyer	<i>Finderne</i>
Henry W. Meyer	<i>New York, N. Y.</i>
William M. Moore	<i>Woodstown</i>
Joseph L. Moreau	<i>Freehold</i>
Ellsworth D. Opie	<i>Somerville</i>
Charles P. Osborn	<i>Stelton</i>
William P. Patterson	<i>Freehold</i>
Spencer W. Perrine	<i>Cranbury</i>
Horace B. Phinney	<i>New Brunswick</i>
Jacob Powelson	<i>North Branch</i>
Frank Rusling	<i>Townsbury</i>
Walter W. Shute	<i>Bridgeton</i>
Lewis F. R. Stout	<i>New Brunswick</i>
Hendrick Van Cleef, Jr.	<i>Cliffwood</i>
David A. Veeder	<i>Toms River</i>
Albert F. Wheaton	<i>Bridgeton</i>
George C. White	<i>Mullica Hill</i>
John Parker Wise	<i>Metuchen</i>

REGISTER

UNDERGRADUATE HONORS

HONORABLE MENTION

CLASS OF 1910

Augustus Blanchard Van Mater

For independent reading of the following texts and examinations passed thereon: Daudet, *Le Petit chose* (Super), Halévy, *L'Abbé Constantin* (Logie), About, *Le Roi des montagnes* (Logie), Mérimée, *Colomba* (Fontaine).

HONOR MEN

CLASS OF 1910

A—A. B. Course

L—Litt. B. Course

S—B. Sc. Course

PREPARATORY SCHOOL

Bowler, Frank Iverson	S	Newport High School
Buzby, John Stewart	S	Moorestown Friends' Academy
Conger, Alexander Millsbaugh	A	Albany High School
Durfee, Jesse Fitzgerald	A	Schoharie High School
Duryee, William Budington, Jr.	S	Freehold High School
Hansen, Andrew	A	Rutgers Preparatory School
Hanson, Thomas Laughlin	S	Perth Amboy High School
Leslie, Edwin Thomas	S	Newark High School
Mason, Frank Edgar	A	Rutgers Preparatory School
Moffett, Ernest Cutter	S	Woodbridge High School
Noe, Sydney Philip	S	Woodbridge High School
Peffer, Burt Jesse	S	Warsaw High School
Rugen, Robert Ernest	S	Plainfield High School
Stryker, Russell Foote	A	Plainfield High School
Thomson, James Claude	S	Rutgers Preparatory School
Van Mater, Augustus Blanchard	S	New Brunswick High School
Wyckoff, Nathaniel Cain	S	Rutgers Preparatory School
Yates, Charles James Manley	S	New Brunswick High School

CLASS OF 1909

Cloke, Allen Dale	S	Rahway High School
Devan, Samuel Arthur	A	Rutgers Preparatory School
Greenewald, Carl Herbert	S	Moorestown High School
Hart, George Wilmot	L	New Brunswick High School
Potter, Francis Marmaduke	A	Rutgers Preparatory School
Shafer, Luman J.	A	Cobleskill High School

REPORT OF RUTGERS SCIENTIFIC SCHOOL

SOPHOMORE ORATORS

CLASS OF 1909

In the order of their appointment according to merit

Luman J. Shafer
Francis Marmaduke Potter
James Bancroft Scott
Samuel Arthur Devan

Maurice Jasper O'Leary
Arthur Douglas Pringle
Frederick Foster Read
James Woods Babcock

JUNIOR ORATORS

CLASS OF 1908

JUNIOR EXHIBITION, 18TH JUNE, 1907

Harry Frank Brewer
Charles Bloomfield Carman
Harry Samuel Feller
Edward Howard Lawson

John William Moffett
Charles Thiers Thompson
Ripley Watson
Howard Irving Wheat

PHI BETA KAPPA

CLASS OF 1907

Solomon Esberg
Lewis Arthur Heath
William Richard Hughes, Jr.
Albert Rittenhouse Johnson

George Allen Leukel
Harry Aaron Marmer
Clifford Davidson Mayhew
Harry John Stockum

Isaac Victor Stone

PRIZES AWARDED

GENERAL PRIZES

Van Doren Prize for Essay on Christian Missions
Van Vechten Prize for Essay on Foreign Missions

Royal Arthur Stout
Andrew Hansen

FRESHMEN PRIZES

<i>Tunis-Quick English Grammar and Spelling Prize</i>	Louis Bevier Van Dyck, Jr.
<i>Sloan Classical Entrance Examination Prizes, 1st</i>	Frank Edgar Mason
<i>Sloan Classical Entrance Examination Prizes, 2nd</i>	Russell Foote Stryker
<i>Barbour Prizes in Speaking, 1st</i>	Andrew Hansen
<i>Barbour Prizes in Speaking, 2nd</i>	John Britton Black

REGISTER

SOPHOMORE PRIZES

<i>Myron W. Smith Memorial Prizes for Declamation, 1st</i>	Luman J. Shafer
<i>Myron W. Smith Memorial Prizes for Declamation, 2nd</i>	
	Francis Marmaduke Potter
<i>Peter Spader Prizes in Modern History, 1st</i>	Francis Marmaduke Potter
<i>Peter Spader Prizes in Modern History, 2nd</i>	Clarel Raymond Seelye

JUNIOR PRIZE

<i>Upson Junior-Orator Prize</i>	Edward Howard Lawson
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SENIOR PRIZES

<i>Suydam Prize for Composition</i>	Solomon Esberg
<i>Suydam Prize in Natural Science</i>	Lloyd Bliss Wheeler
<i>Brodhead Classical Prize</i>	Charles Noble Doolittle
<i>Bradley Mathematical Prize</i>	Harry Aaron Marmer
<i>Bradley Prize in Roman Law</i>	Charles Noble Doolittle
<i>Appleton Memorial Prize in Moral Philosophy</i>	Bruce Ballard
<i>Bowser Engineering-Thesis Prize</i>	William Richard Hughes, Jr.
<i>Bussing Prizes in Extempore Speaking, 1st</i>	Solomon Esberg
<i>Bussing Prizes in Extempore Speaking, 2nd</i>	William Sanderson Woodruff
<i>Class of 1876 Political Philosophy Prize</i>	Lloyd Bliss Wheeler
<i>Luther Laflin Memorial Prizes in Metaphysics, 1st</i>	George Allen Leukel
<i>Luther Laflin Memorial Prizes in Metaphysics, 2d</i>	Royal Arthur Stout
<i>Classical Prize in Logic</i>	Solomon Esberg
<i>Scientific Prize in Logic</i>	Harry Aaron Marmer
<i>Theodore Frelinghuysen Vail Prize</i>	Solomon Esberg

RUTGERS CORPS CADETS

COMMANDANT

CAPTAIN R. B. PARROTT

Twenty-seventh U. S. Infantry

FIELD AND STAFF

<i>Cadet Major</i>	
<i>Cadet Captain and Adjutant</i>	W. W. Berdan
<i>Cadet First Lieutenant and Quartermaster</i>	C. D. Black

NON-COMMISSIONED STAFF

<i>Cadet Sergeant Major</i>	F. A. Morrison
<i>Cadet Quartermaster-Sergeant</i>	S. S. Demarest

REPORT OF RUTGERS SCIENTIFIC SCHOOL

	COMPANY A	COMPANY B
<i>Cadet Captains</i>	D. J. Fisher	R. C. Rice
<i>Cadet 1st Lieutenants</i>	R. A. Lufburrow	J. A. Mahnken
<i>Cadet 2nd Lieutenants</i>	W. P. Seddon	A. B. Fox
<i>Cadet 1st Sergeants</i>	T. F. Appleby	R. F. Ritter
<i>Cadet Sergeants</i>	F. G. Tisdall	F. F. Read
	W. H. Wallace	A. D. Cloke
	R. B. Van Sickle	
<i>Cadet Corporals</i>	C. C. Hommann, Jr.	W. T. Case
	J. S. Buzby	E. T. Leslie
	C. W. Germann	W. W. Faussett
	COMPANY C	COMPANY D
<i>Cadet Captains</i>	E. W. Kent	H. R. Segoine
<i>Cadet 1st Lieutenants</i>	C. A. Wilbur	E. S. Brokaw
<i>Cadet 2nd Lieutenants</i>	H. S. Feller	A. C. Swift
		H. S. Gies
<i>Cadet 1st Sergeants</i>	A. D. Pringle	H. E. Ramsen
<i>Cadet Sergeants</i>	W. L. Van Keuren	B. M. Miller
	J. W. Janvier	C. H. Greenwald
<i>Cadet Corporals</i>	A. T. McMichael	N. C. Wyckoff
	F. I. Bowler	J. C. Thomson
	B. J. Pepper	R. Nutt

COLOR GUARD

<i>Cadet Color Sergeants</i>	B. S. Merrill
	T. M. Hopler

FIELD MUSIC

<i>Cadet Drum Major</i>	H. I. Wheat
<i>Cadet Chief Musician</i>	C. B. Finch
<i>Cadet Principal Musician</i>	C. L. Mason

DISTINGUISHED STUDENTS IN THE MILITARY DEPARTMENT

The orders of the War Department provide that on the graduation of every class the names of the three most distinguished students in military science and tactics shall be inserted in the United States Army Register; and that the names of such students as have shown special aptitude for military service shall be reported to the Adjutant General of the United States Army and to the Adjutant General of the State of New Jersey.

Cadets most distinguished in military science and tactics in the class of 1907 whose names will be inserted in the United States Army Register for 1908:

<i>Cadet Major</i>	W. R. Hughes, Jr.
<i>Cadet Captain</i>	Reuben Tharp, Jr.
<i>Cadet Captain</i>	L. A. Heath

REGISTER

Cadets in the Class of 1907 who have shown special aptitude for military service and who have been so reported to the Adjutant General of the United States Army and to the Adjutant General of the State of New Jersey :

<i>Cadet Major</i>	W. R. Hughes, Jr.
<i>Cadet Captain</i>	Reuben Tharp, Jr.
<i>Cadet Captain</i>	L. A. Heath
<i>Cadet Captain</i>	V. D. Tompkins
<i>Cadet Captain</i>	R. D. Van Duzer
<i>Cadet Captain and Adjutant</i>	H. C. Robins
<i>Cadet First Lieutenant and Quartermaster</i>	C. D. Mayhew

DEGREES CONFERRED

BACHELOR OF ARTS

CONFERRED ON CANDIDATES IN COURSE

Charles Noble Doolittle	George Allen Leukel
Solomon Esberg	Frederick Wilson Scott
Frederick Adam Kullmar	Royal Arthur Stout
	Lloyd Bliss Wheeler

BACHELOR OF LETTERS

CONFERRED ON CANDIDATES IN COURSE

Bruce Ballard	Alton P. Swan
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BACHELOR OF SCIENCE

CONFERRED ON CANDIDATES IN COURSE

Charles Chambers Armstrong	Walter Ernest Nelson
John Louis Baker	Alex William Quackenboss
Ralph Lester Beach	Walter Frank Reinheimer
Abraham Blum	Harvey Clifford Robins
Walter Rodney Cornell	Walter Frederick Ludwig Roeder
Randolph Marshall Creamer	Harry John Stockum
Jesus Maria Gonzalez	Isaac Victor Stone
Thomas Dean Halliwell, Jr.	Reuben Tharp, Jr.
Lewis Arthur Heath	Vinton Douglas Tompkins
William Richard Hughes, Jr.	Ralph Decker Van Duzer
Albert Rittenhouse Johnson	Frank Robertson Van Sant
Harry Aaron Marmer	Raymond Percy Wilson
Clifford Davidson Mayhew	Walter Harris Wilson
	William Sanderson Woodruff

REPORT OF RUTGERS SCIENTIFIC SCHOOL

MASTER OF ARTS

Asa Wynkoop '87	Henry John Vyverberg '01
Harmon Bay Niver '88	Arthur Le Grand Berger '04
Charles Edward Corwin '92	Henry Dyer Cook '04
Amos Hoppock Haines '92	Emil Eisenhardt Fischer '04
Charles Reed Bell '01	Martin Adrian Schenck '04

MASTER OF SCIENCE

Martin Stoetzel Meinzer '01	Earle Julien Owen '03
Fred Carl Hoth '02	Herman Arthur Plusch '04
Harry Riley Lee '03	Thomas Earle Van Winkle '04

CIVIL ENGINEER

John Finley Drake '98	Fred LeRoy Brown '04
Charles Vernon Smith '98	Richard Heuser '04
Louis Maxwell Young '04	

BACHELOR OF DIVINITY

Ralph Crosby Morris '03

HONORARY DEGREES

DOCTOR OF LAWS

Edward Casper Stokes	<i>Trenton, N. J.</i>
John Walter Beardslee	<i>Holland, Mich.</i>
William Henry Vredenburg	<i>Freehold, N. J.</i>

DOCTOR OF DIVINITY

Reverend Jeremiah Searle	<i>Newburgh, N. Y.</i>
Reverend Christopher Grant Hazard	<i>Catskill, N. Y.</i>

DOCTOR OF SCIENCE

Alfred Alexander Titsworth	<i>New Brunswick, N. J.</i>
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MASTER OF ARTS

Bukk G. Carleton	<i>New York City</i>
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REGISTER

FINAL HONORS

GRADUATING EXERCISES, CLASS OF 1907

COMMENCEMENT, 19TH JUNE, 1907

FIRST CLASSICAL HONOR

Solomon Esberg *Perth Amboy, N. J.*

SECOND SCIENTIFIC HONOR

Harry Aaron Marmer *Woodbine, N. J.*

SECOND CLASSICAL HONOR

*George Allen Leukel *Eatontown, N. J.*

ORATION

Harry John Stockum *Marlton, N. J.*

RHETORICAL HONOR

George Allen Leukel *Eatontown, N. J.*

ORATION

Isaac Victor Stone *Woodbine, N. J.*

FIRST SCIENTIFIC HONOR

William Richard Hughes, Jr. *New Brunswick, N. J.*

THIRD SCIENTIFIC HONOR

Albert Rittenhouse Johnson *Raven Rock, N. J.*

THIRD CLASSICAL HONOR

Charles Noble Doolittle *Hackensack, N. J.*

*Excused on account of delivering the Rhetorical Honor Oration.

HONORS IN SPECIAL SUBJECTS

A.B. COURSE

George Allen Leukel *In Philosophy*
Solomon Esberg *In History*

B.SC. COURSE

Lewis Arthur Heath *In Electricity*
William Richard Hughes, Jr. *In Mathematics*



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Founded 1766

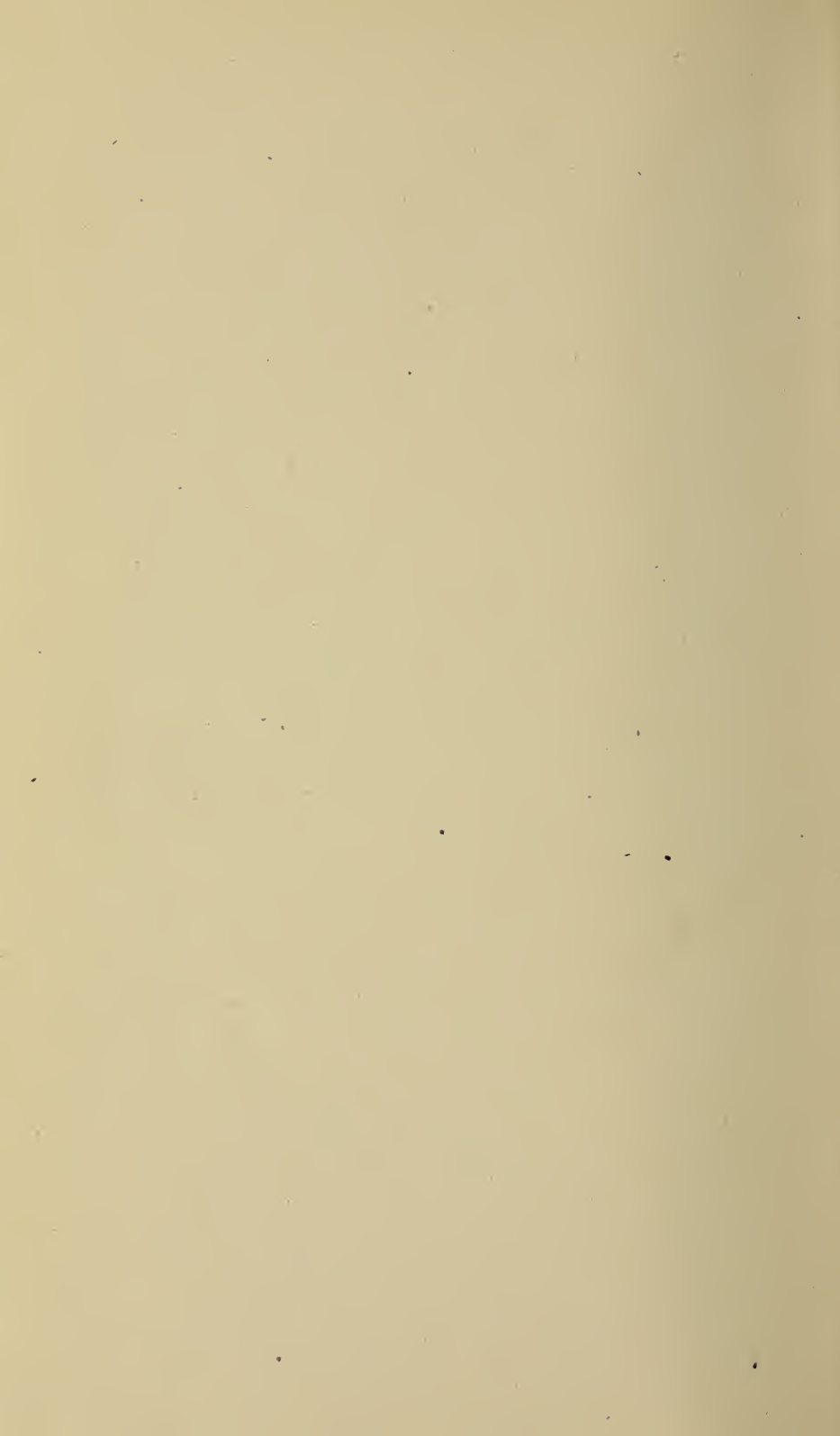
ELIOT R. PAYSON, PH.D., HEAD-MASTER

The charter of Rutgers College dates from 1766, and with the College was established the "Grammar School" as an auxiliary branch. How the school was conducted during its first year is not clearly recorded, but in 1778 it appears from a notice in the *New Jersey Gazette*, published at Trenton, that John Bogert was the head-master. The list of head-masters from that time to the present is complete. In the early minutes of the College frequent references to the "Grammar School" may be found. For instance, in 1782, 3d October, "the Tutor laid before the Board a state of the College and Grammar School," and in 1783, 24th April, it was "ordered that the Faculty be authorized to procure a person qualified to instruct in the Grammar School." This school is, therefore, entitled to rank among the oldest in the United States. It is now, as it was at its origin, under the control and management of the Board of Trustees of the College.

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